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Original Contributions.

PROF. GEORGE WATT AND THE BRUSH ELECTRIC LIGHT.

BY F. S. CASPER, D.D.S., AUSTIN, TEX.

It may not be generally known in the profession, but it is nevertheless a fact, that the late Prof. Geo. Watt, of Xenia, O., if not the original inventor of the brush electric light, at least foreshadowed that invention. Sometime during the session of 1869-70 in a lecture before a class in the Ohio College of Dental Surgery, while illustrating the phenomenon of the giving off of a spark from the positive to the negative pole of a battery, Dr. Watt said, "Now, gentlemen, if any of you are ever enabled to condense charred coal or carbon into the form of a stick, with the end sharpened like a pencil, place one piece in the negative and one in the positive pole, allow the points to come near to each other, and you will have the most brilliant light ever known." The echo of his words has been in my memory ever since. There were twenty-six in the class, including Drs. H. K. Lathrop, J. E. Cravens, Van Antwerp, Allison, Arrison and others who will no doubt remember the above.

MAKING GOLD FILLINGS OUT OF THE MOUTH BY THE IMPRESSION AND MATRIX SYSTEM.

BY R. M. CHASE, D.D.S., BETHEL, VT. READ BEFORE THE VERMONT STATE DENTAL SOCIETY, AT ST. JOHNSBURY, MARCH 21-23, 1900.

The making of gold fillings out of the mouth would at first thought perhaps seem a little strange, yet my excuse for being somewhat enthusiastic in this line of work is justified by the results obtained thus far in practice. Any means whereby the burden of tooth-filling can be lessened to both patient and operator, without losing the artistic effect and permanency of the operation, seems to me both justifiable and commendable. In the special field for which this work is designated it has given pleasurable satisfaction;

pleasurable because of the less tedious waste of time and vitality of both patient and operator, overcoming many annoying perplexities incident to the filling of inaccessible and large cavities. The preparation of cavities for porcelain inlays has been so thoroughly given in the recent dental journals that a repetition is unnecessary, as the details given apply equally well to gold inlays so far as preparing the cavity is concerned, remembering, of course, that gold has a wider field, and can be utilized to a greater extent, fully restoring broken and decayed molars to usefulness where porcelain would be impracticable.

When there are large undercuts, as is often the case in the crown of molars, cut away all thin edges of enamel and excavate thoroughly. If the cavity is deep, cover the floor of the cavity and all undercuts with some good non-irritating cement, varnish the same with sandarac, and in a short time the cement will be hard enough to trim, leaving the side at right angles to the floor of the cavity. This applies to the shaping of crown cavities where decay has progressed rapidly into the dentin, and you wish to save as much as possible of the occluding surface. The labial cavities of the anterior teeth and the buccal cavities of the bicuspid and molars will not as a rule require any preparation with cement, as the shape of these is usually larger at the orifice. Approximal cavities of incisors and cuspids should be cut away and properly shaped from the palatal and lingual sides. Approximal cavities of the bicuspid and molars should be so formed that they will present a pyramidal shape with the base of the pyramid at the occluding surface. The object of this shaping of the cavities is to facilitate the withdrawal of the impressions.

The impression compound which I use is the result of a long series of experiments in this line of work, and it fills a long-felt want not only for the making of matrices for gold and porcelain inlay work, but for reproducing the exact shape of the crowns and roots of teeth for crown and bridgework. When ready to take the impression, carefully dry and protect the cavity from moisture, and with a small piece of the compound between the thumb and index finger force the material into the cavity, using enough force to make sure that the compound occupies every part. Gently withdraw it and examine to see if you have a perfect impression of the shape, angles, sides and edges of the cavity. When you can use an impres-

sion-cup it is advisable to do so. If there is any tendency of the compound to adhere to any part of the cavity, a little lycopodium sprinkled upon the surface of the compound will obviate any trouble in that line. Around the impression place a small band of very thin German silver, copper or platinoid. This band should be at least an eighth of an inch larger than the cavity impression and about one-half inch high. Be careful when placing it that you do not disturb the impression. The edge of the band should be pushed into the compound, so that there will be no chance for the alloy to flow underneath. The impression is now ready and a matrix can be made with fusible alloy.

As soon as the alloy is poured into the band onto the impression, tap the impression-cup gently on the table, or when the cup has not been used, the compound should be held in a napkin or tissue paper, as in the act of taking the impression between the thumb and finger, the napkin will prevent burning the fingers should any melted alloy escape. The tapping can be done with the hand until the alloy begins to set. This will insure a sharp reproduction of the edges of the cavity, and a little practice will enable you to do it easily.

After you have produced a matrix imbed this in a little plaster-of-Paris, either on the bench or on something that will make a firm foundation, or fasten in the bench vise and proceed to fill with gold, or dismiss patient and make the filling at your leisure. Gold foil pellets, ropes of fibre gold can be used for making inlays, holding with an instrument until you get it well anchored, or if the shape of the cavity is such that it may start, one or two retaining pits can be made at the bottom of cavity; burnish thoroughly and partly finish the filling in the matrix. To remove filling hold the matrix over a spirit-lamp and so soon as the alloy melts a little from edge of inlay, give the matrix a quick jerk and the filling will come out clean and a perfect inlay to the tooth cavity.

In building up a bicuspid or molar, after the cavity is prepared, mould a little wax into the cavity and ask your patient to close the mouth. This will give the articulation of the opposite tooth, which placed in the matrix and arranged on an articulator will enable you to complete the occluding surface without any subsequent grinding; when placed in the tooth cavity, make slight undercuts with a wheel bur at the sides, also some little depressions in the base of the inlay. Use any good cement, mixed to a creamy consistency.

Before the final adjustment of the inlay try it in the cavity and see if it fits perfectly at the edges; if it does not, a perfect fit can be secured by holding the filling with an instrument and burnishing it to the edge of the cavity. Fill the cavity with cement and force the inlay into place, holding it firmly for a few moments, and then coat the edges with sandarac varnish. After a short time it can be finished up or left for a subsequent sitting.

It may seem to you that it must take a long time to make these fillings. I can say only that you will be surprised, after becoming familiar with the method, to see how quickly you can make them. You will find the impression and matrix system equally as good for porcelain inlays, and you will get positive results by burnishing the foil into the matrix, and if you do not get a perfect inlay the first time you can duplicate it without access to your patient.

PORCELAIN INLAY.

By H. BURBRIDGE, D.D.S., WOODSTOCK, VT. READ BEFORE THE VERMONT STATE DENTAL SOCIETY, AT ST. JOHNSBURY, MARCH 21 23, 1900.

Up to the present time nothing has ever been introduced to the profession for the filling of cavities in the natural teeth that in any sense of the word produces an artistic result. The choice so far is gold, the excellent qualities of which cannot be denied, but from an esthetic point of view it is sadly at fault. How often do our patients say, "Will the gold show?" Now, if our work were of the highest type of art, and the material did show, there would be no need of the question, as it would not show, for being the highest type of art it would conceal itself. Therefore, with the advent of porcelain in such forms that it can be handled by almost any dentist who will take the pains to master the fundamental principles, this main objection has been removed.

As is not generally known, the making and inserting of a porcelain inlay consists of the following steps: 1. Preparation of cavity. 2. Adaptation of the platinum or gold form in which the porcelain is baked or melted. 3. Investing of gold or platinum form; packing and melting of the powder or paste. 4. Finally, removal of the form from the finished inlay and cementing in place of the same. Let us therefore consider the proper manipulation of the various steps. For the simplest form let us conceive a cavity oblong in shape, with flaring walls and the floor perfectly smooth, with no re-

tentive points. Especial care should be given the margin of the cavity. It must be as clearly cut and perfect as is possible for human agency to make it, or the work will be a total failure. This may be accomplished by the aid of small stones, diamond points or finishing burs.

The next step is the making of the platinum or gold form. This is conceded as the most difficult part of the whole operation, as on this fitting accurately depends the success of the finished piece of porcelain. In accomplishing this I prefer rolled gold, No. 30, it being softer and more pliable than platinum. I take a piece larger than the orifice of the cavity, then with a round smooth burnisher gently rub the gold upon a piece of soft, smooth and clean cork, depressing it in the centre to the approximate size of the cavity to prevent tearing the gold in carrying it to the bottom of the cavity. After which I anneal and place it in the cavity and pack it tightly with small balls of cotton or spunk, repeatedly burnishing the edges and annealing as often as required. Being satisfied that the form fits accurately, I take a small piece of white wax which is slightly warmed and press it into the cavity with a flat burnisher. If it is an approximal cavity, involving labial and lingual walls where the burnisher will not do, I select an ordinary polishing strip (one of the finest, wide enough to entirely cover the cavity), putting the smooth linen side next to the wax, and pull the wax into the cavity, using care in not drawing the tape in one direction or the other, but with a steady pressure forcing the wax into all parts of the form and avoiding a surplus of wax beyond the margin. The form can now be removed with very little danger of getting it out of shape.

After that I imbed the form in an investing material which will stand the heat and can be dried quickly without cracking. Then warm the investment over a spirit-lamp, and as soon as the wax warms a little take it out, not allowing it to melt. Next wash out the form with alcohol in order to remove all traces of the wax; then as a further assurance of this result I place the investment in the furnace and bring it to a red heat.

After cooling it is ready for packing with the porcelain paste. Care must be taken in packing the paste so that it will not shrink away from the margins. I generally make at least three bakings, sometimes more, according to the case. Having selected the proper

color or colors necessary, I mix the powder either with gum water or distilled water (preferably the gum-water, as you can then carve it up better to shape if necessary) to the consistency of thick cream, with which I cover the bottom of the matrix, letting it run up nearly to the margin. Then tap with an instrument to bring the water to the surface and absorb with a piece of clean linen, continuing to tap until the paste is closely packed down and all the surplus water absorbed. Now with a small camel's-hair brush remove the center of the paste, leaving just a ring around the margin, for if this is not done it will shrink toward the largest mass of its own body, which is the center, but this center has been removed, therefore it shrinks toward the circumference.

Then place it at mouth of furnace and turn on current, passing the investment in as it heats up until it is carried to the back of furnace. The first baking should be thorough, as this will not move in subsequent heatings unless carried to an extreme. The next packing should fill the matrix even full. Proceed as before, tapping and absorbing the water with linen. At this stage of the manipulation care should be taken to remove all particles of paste that overhang the margin of the matrix. If this is not done the margins will be ragged, and there will be small bubbles. A perfect margin is the most essential feature of a porcelain inlay.

After the second baking there may or may not be a shrinkage, according to the fineness of the powder or care in the packing of it. If there should be any shrinkage, add sufficient to supply the deficiency, wherever it may be, and bake again. This can be repeated any number of times, according to the requirements of the case at hand. After the last baking it is better to leave the inlay in the furnace to cool, as sudden changes of temperature may cause fracture of the finished piece. When cool enough to handle, the gold may be stripped off, commencing at the margin all around with a pair of pliers to prevent marring the edges, and when once free of the margin it can be pulled away without danger.

The walls of the inlay should have fine grooves cut in them to assist in the retention. (If possible these should not be opposite to one another, as in small inlays they would tend to weaken it.) This can be done by fine diamond disks, which are kept wet when cutting.

It is obvious that the cementing of the inlay is a very important

matter, as it will affect the color by many shades, generally rendering it darker. Any four-color high grade cement that will mix thin without deteriorating in strength will answer. Gray and white are the colors that will match the majority of cases. Mix the cement somewhat thinner than for filling. The cement should be thoroughly smeared over the walls of the cavity and inlay. Carry the inlay to place with small wedges or points of orange wood. Pressure should be maintained if possible until the cement has nearly hardened. I find it better to wait until a subsequent sitting to remove a surplus of cement, also to examine and complete the operation.

A few considerations in regard to details may not be out of place. The inlay will go to place better if a double thickness of gold is placed in the bottom of the cavity. Never bevel the margin of the cavity to any extent, as it will be very liable to fracture, being thin, if much pressure is applied when cementing to place. In all approximal cavities it is better to choose a lighter shade than the tooth, as the inlay is not translucent like the tooth itself but is opaque, making it look darker.

In order to get the best results from cements obtainable at the present day it is necessary to incorporate as much of the powder with the liquid as possible. Now, this cannot be done in the setting of an inlay. As I said before, the cement must be mixed somewhat thinner than for filling; we necessarily deprive it of an important part of constituency. Again, it is my firm belief that what is required is a cement that is clear in color, for no matter how perfect the color of the inlay, any cement with a semblance of color will act as a cloud coming between the tooth and inlay, thereby increasing the opaqueness. And it will not be until we can produce an inlay having the same translucency as the tooth itself that we shall attain the highest type of the art.

CHRONIC CASE OF EMPYEMA OF THE ANTRUM.

BY S. D. HODGE, D.D.S., BURLINGTON, VT. READ BEFORE THE VERMONT STATE DENTAL SOCIETY, AT ST. JOHNSBURY, MARCH 21-23, 1900.

In this case, of a prominent clergyman, aged 56, the antrum affected was on the right side.

There is one point in the etiology of diseases of the antrum on which there is unanimity of opinion; it is not an idiopathic affection.

Most of the dental text-books give dental caries, periostitis, injury and abscess of the roots of the teeth as the cause. I think that most dental practitioners are of the opinion that nearly every case can be traced to these sources. On the other hand, most rhinologists of to-day, while giving diseases of the teeth as the cause of the majority of cases of antral trouble, are of the opinion that a good percentage of cases are of nasal origin.

So far as I know, every one who has been connected with this case is of the opinion that the cause of the antral trouble was chronic nasal catarrh of many years' standing, and that there was empyema of the antrum for a long time before it was suspected that it was involved. You will readily recall the fact that the antral is only one of a series of accessory cavities, and that the orifices by which the frontal, anterior ethmoid and antral cavities communicate with the nasal chambers are close together, so that pus or a purulent discharge from one of these sinuses might easily find its way into the antrum, infecting that.

Empyema of the antrum is usually preceded by a catarrhal inflammation, and with the access of microorganisms assumes a purulent character. In this case there was a general impairment of the vitality of patient. There was very marked anemia; lips, ears, eyelids were bloodless. You could almost look through the hands, and the liver and kidneys were inactive. This condition of active toxemia was very marked for two years before trouble with the antrum was discovered, and so grave was the condition of the patient at the time of the opening into the antrum that there was great anxiety lest general systemic infection should follow the operation.

About two years before trouble with the antrum was discovered the right superior bicuspid had been crowned with a Logan. It was an excellent piece of work in every respect, and had done good service for something like eight years, when the post of the crown broke. I drilled out the broken post and put on a new crown. This was worn with entire comfort for something over a year, when the root split. The patient was at this time ill at a hospital, and as the root began to abscess it was taken out Christmas day, 1896. This healed without any trouble.

For many years the patient had been troubled with severe headaches, the pain being in the frontal region. The usual symptoms of antral trouble were absent, and the teeth and gums were in a healthy

condition, no alveolar enlargement. About August, 1897, there was a sense of distention and weight in the upper jaw. He went to Montreal and placed himself under the care of Dr. C. Zaugg. August 10, 1897, Dr. J. H. Bourdon of Montreal extracted the right superior first molar, and Dr. Zaugg opened into the antrum, following the socket of the palatine root of the first molar. Cocain was used in this operation, the patient not desiring to take an anesthetic. His condition was such that it was thought best to pursue a conservative line of treatment and not attempt any radical operation; making simply an opening for drainage, using antiseptic washes, and building up the system, believing that with increasing vitality both the antral and nasal trouble would be brought under control. Upon opening into the antrum a large amount of pus was found. This was washed out with a saturated solution of boric acid.

About a week after the operation the patient came to my office, and a plate was made to hold a silver drainage tube in position, which was worn till November 23, when Dr. Bourdon made another plate, using a different shaped tube. This plate was clasped to the second molar and first bicuspid. In October, 1897, an operation was performed by Dr. Zaugg, removing hypertrophied tissue from the middle turbinal, left side, by cautery. In April, 1898, he removed a large mass of hypertrophied tissue from inferior turbinal, right side, using the cautery. Much relief was given by these two operations.

There had been a gradual improvement in the condition of patient from time of first operation of opening into the antrum in August, 1897, till the summer of 1898. He then began to be troubled with violent headaches, the pain being most severe in the frontal region, and the general condition began to grow worse. Dr. Zaugg came to see him August 29, 1898. The patient was suffering intense pain and had a high fever. Examination showed the membrane covering the middle turbinal, right side, greatly congested, and so great was the congestion of the tissues that the passage was nearly closed, almost filling the space between the middle and inferior turbinated bones. This was immediately relieved by the application of a four per cent solution of cocain. The nasal condition was so severe as to give rise to a painful attack of trifacial neuralgia. Heroic doses of quinin and codein were given for six days. The congestion and pain were relieved, and the following

week patient went to Montreal and Dr. Zaugg cut away the hypertrophied tissue from middle turbinal, right side, by snareing.

It was thought best at this time to take out the first bicuspid, which was done by Dr. Bourdon, who made a new plate, and a new drainage tube of gold was used. There has been a marked improvement in every respect since these operations. The general health has improved, no further headaches, and the discharge from both the antrum and nasal passages less in quantity and less purulent. A little later another plate was made by myself, using the same drainage tube; this is the one patient is now wearing. It is clasped to the second molar and the cuspid. Many different solutions have been used to wash out the antrum. After the first operation boric acid, saturated solution, alone was used; peroxid of hydrogen ten per cent was used for some time; carbolic acid solution two per cent; resorcin one, two and three per cent; hydrozone fifty per cent, followed by glycozone; glyco-thymoline twenty per cent; tr. calendula two per cent.

From the time of the first operation in August, 1897, until September, 1899, the washing out of the cavity had been done principally by the patient, two or three times daily, the syringing being done through the drainage tube, and every week coming to my office to have the plate and drainage tube thoroughly cleansed. In September, 1899, we commenced the use of protargol, taking out the drainage tube every day and thoroughly irrigating the antrum through the opening in the alveolar process. The protargol was at first used one-half of one per cent solution, but later about one-fifth of one per cent, followed by a mild solution of Wampole's Formalid. The protargol was used for about four weeks daily, and since that time has been used occasionally, when there is much catarrhal discharge. We are now washing out the antrum, removing the drainage tube four or five times a week, using a mild solution of formalid. The patient washes it out daily through the drainage tube, using a solution of boric acid or chlorid of sodium.

Numerous bacteriological examinations of the discharges from both the antrum and nasal passages have been made. Streptococci and staphylococci and pus cells have been found in every examination. The most interesting microscopical examination was one made at the Vermont State Laboratory of Hygiene, Feb. 4, 1899, which is as follows: Growth reddens litmus; ferments Smith solution;

grows with gas production in gelatin stab; gives indol reaction with Dunham's solution; bacterium is *B. coli communis*; pathogenic for guinea-pig in nine days. I think that this bacillus has not been found since.

The condition of the patient to-day is that of returning health and vigor. In washing out the antrum, the water as it comes away is usually clear, showing but little discharge. There is considerable discharge from the nasal passages. The last microscopical examination made a few weeks ago showed the same bacilli in both antrum and nasal passages. Transillumination of the antrum shows slight hypertrophy in one or two places. No trace of caries of the bone can be found. It is my opinion that if the nasal passages were in a normal condition, it would be safe to take out the drainage tube and close up the antrum.

AMALGAM ALLOYS AND THEIR USES.

BY G. E. HUNT, D.D.S., INDIANAPOLIS, IND. READ BEFORE THE VERMONT STATE DENTAL SOCIETY AT ST. JOHNSBURY, MARCH 21-23, 1900.

The tendency of the age is to exactness. There is a fascination in figuring to ten and twenty thousandths of an inch that is difficult to resist. Most of those who talk so glibly of such measurements have little appreciation of the accuracy and delicacy of manipulation necessary to successfully make measurements of such minuteness. The writer seriously doubts whether the micrometers from which the published reports of alloy tests were made are capable of measuring a ten-thousandth part of an inch with exactness, but their work is sufficiently accurate to give very correct notions regarding many things relating to amalgam alloys. Broadly stated, we may sum up the results as follows: First, it is possible to produce an alloy which, when amalgamated and packed in a certain way, will practically neither shrink nor expand. Second, crystallization of the molecules of such an alloy will take place very shortly after incorporation of mercury.

In regard to the first statement, let me make the assertion that there is no perfect formula. No one will ever be able to state a formula for an alloy that will give the desired results in the hands of all makers, whether they are experienced or inexperienced. Of course skilled metallurgists, who are daily employed in studying and working with such alloys, will come nearer getting uniform

results from a given formula than those not so employed, but the personal equation is certain to enter into the problem sufficiently to make my assertion a truth. The manner and method of smelting, the precautions taken against oxidation, the length of time the smelt is roasted, the temperature at which and the manner in which it is poured, the condition of the molds, the after-treatment of the ingot, and finally, the annealing of the cut product, all matters absolutely under the control of the operator, have each a bearing on the final result. What will be a formula resulting in the least change in the hands of one maker may, under slightly different manipulation by another man, prove a failure, while maker No. 2 may get results with another formula that maker No. 1 is unable to duplicate. This may sound like a splitting of hairs, but it is a fact—and splitting hairs is necessary to satisfy the extremists of to-day. So I will not attempt any comment on formulæ at all, nor will I enter the broad domain of methods in alloy making. These subjects are better left to the conscientious metallurgist who is qualified by education to cope with them. The dentist is no more fitted by training and experience to make alloys than he is to make gold foil or cement. The technique of these latter operations is as accessible as that of the former, but only the skill and experience that comes from knowledge and constant practice can bring about desired results in the manufacture of any of the three. Of more moment to the practitioner is the choice of an alloy and its manipulation.

The alloys offered for the use of the profession to-day may be roughly divided into quick, medium and slow-setting. The time required for crystallization may be modified to some extent by the manufacturer, but it is not entirely within his control. The formula used very largely governs the rapidity with which the alloy sets. It is claimed for the quick-setting alloys, and very justly, that they show less shrinkage, greater resistance to a crushing force and less "flow" or change of form under pressure insufficient to crush the mass. The objection to their use is that they set very rapidly, and in the hands of many this objection is almost an insuperable one. The medium-setting alloys will shrink some, but they give time for care in making the filling, and enable the operator to work with greater deliberation. The slow-setting alloys, those which take from one to five hours to set, shrink even more and are gradually passing out of use.

The question of the point at which an amalgam crushes is of little interest to me. I never saw an amalgam filling crushed in mastication, and I never heard of such a catastrophe. The amount of flow or lateral movement under repeated impacts *is* of interest. It is almost certain that very slow-setting alloys are sufficiently soft to creep or flow under impacts. This tendency is largely due to the amount of tin they contain. A medium-setting alloy can be made that will contain enough silver to minimize this flow so that it is of little moment. The amount of flow under a steady pressure is of no importance unless it be proven that there is a relation between the figures so obtained and those obtained by measuring the flow produced by repeated impacts. Engineers know that even chilled steel will flow if sufficient weight be put upon it for a sufficient length of time. Movement of the molecules of any metal will take place under the proper combination of sufficient time and weight; but no amalgam filling in the mouth is ever subjected to a continuous weight of two hundred, or fifty, or even five pounds. The flow there must be brought about by repeated impacts, if at all.

So the choice of an alloy rests between the quick-setting ones which have a minimum amount of shrinkage, or perhaps some expansion, and medium-setting ones which have a little more shrinkage and set slower. Which shall we use? In my opinion, each operator will have to decide that question for himself. It all depends on the man. I have seen many fillings made by good operators from quick-setting alloys that were very poor fillings. I have seen fillings made from quick-setting alloys that would permit of a large party of microbes dancing quadrilles between the dentin and the porous material that had begun to crystallize before the operator placed it in proper position. I have seen fillings made from quick-setting alloys that I am sure will not preserve the teeth as well as if they had been made with a slow-setting alloy, even if it did shrink a little. But this does not prove that the quick-setting alloys are bad. It proves only that a great deal depends on the man who makes the filling. Many operators will never make successful fillings with the quick-setting alloys. When an amalgam begins to crystallize, disturbance of its molecular arrangement must be attended with disaster. The operator who is unaccustomed to this class of filling material will endeavor to use it when crystallization has begun, will note the friability of it, and will discard it with the

complaint that it has "poor edge strength," when the whole fault lay in his manipulation. These are not fancies, they are facts. The manipulation of quick-setting alloys must be studied and mastered before they can be used with success. No operator can change from years of use of cohesive foil and make successful fillings at once with soft gold. Many operators *never* learn to make good fillings with soft foil or tin. And so it will be with quick-setting alloys.

The medium-setting alloys *have* saved teeth in the past. The record of several decades of clinical experience proves that teeth can be and have been preserved by their use. Investigation by means of the micrometer has proven that they shrink, some more and some less. Clinical experience proves that they save teeth. They may do it in spite of their badness instead of on account of their goodness, but they save teeth. You may be sure that a filling well made with a medium-setting alloy will give better clinical results than a filling badly made with a quick-setting alloy. Much depends on the operator. An alloy is often condemned when the fault was in the preparation of the cavity and the insertion of the filling. When the gold filling of these same operators fail they attribute it to "poor tooth structure."

In my opinion, every alloy filling would be better if malleted to place. If it is not malleted, every piece of amalgam should be condensed with a pressure of from seven to ten pounds. The next time you buy a steak take your lead pencil and, holding it as you would a plugger, make pressure on the spring-balance scale on which your meat is weighed, and see what ten pounds of pressure means. If you are not condensing your amalgam fillings with that amount of pressure you are not making them as nearly perfect as you can. And if you will put a small pledget of bibulous paper over each piece of amalgam as you place it in the cavity, and mallet the mass thoroughly, you will be making a still better filling. The bibulous paper serves the two-fold purpose of preventing any chopping up of the amalgam and of taking up any free mercury that the malleting may bring to the surface. When a piece of the mix is placed in the cavity it should be carried straight before the plugger point until thoroughly condensed. For this work broad, flat, shallow-serrated points are best adapted. The round ball burnishers so frequently used in working amalgams are not well fitted for the purpose.

If a medium-setting alloy is used, all excess mercury should be

wrung out and the amalgam used as dry as it is possible to get it. This is best accomplished by using a piece of drilling or fine meshed linen. The mix is placed in the middle of the piece and the ends tightly twisted. It is good finger exercise if you get the mass as dry as you should. With the quick-setting alloys such a procedure is impracticable. The time spent in wringing out the alloy and the greater rapidity of crystallization imparted to it by the small amount of mercury left in it, are almost certain to cause it to partially set before it is used.

If the following rules for making an amalgam filling are carried out the result will more often correspond with the desires of the operator. First. Prepare the cavity just as you would for a gold filling, except that bevelling the margins is advisable. The same care devoted to the preparation of the cavity that is given to one designed to receive gold will alone vastly increase the percentage of successful fillings. Second. Never put an amalgam filling in an occluso-proximal cavity without a matrix. The best amalgam filling can be inserted only when the cavity has four walls against which to pack the material. If one of the tooth walls is broken down, its place must be taken by a matrix if the desired results are to be obtained. Third. Use enough mercury to make a homogeneous mass that does not readily crumble under the finger. If the alloy is a medium-setting one, wring the mix out strongly, leaving it as dry as possible. If a quick-setting one, leave enough mercury in the mix to enable you to fill the cavity before perceptible crystallization occurs. This amount can be determined only by experience. Fourth. Place small pieces one at a time in the cavity, condensing each piece before adding another. Good amalgam fillings cannot be made by "wiping" the alloy into the cavity in one large mass. Condense with broad, flat-faced, shallow-serrated pluggers by placing the point either directly on the alloy or on bibulous paper covering the alloy, and carrying that portion of the mix directly before the plugger point until it is condensed. The plugger is then placed on another part of the mass and the performance repeated. Chopping up the alloy by repeated jabs at it, as in condensing gold, is harmful. Heavy pressure with hand instruments, or preferably, malleting, will give the best results. Fifth. Finish every filling with the same care that is bestowed on gold fillings. No matter how well the cavity is prepared or how well the filling is

inserted, a bad finish at the cervical margin will cause it to fail in a short time. Sixth. Charge more for your amalgam fillings. Your patient will appreciate them more highly and you will make them better. "The better the pay, the better the deed."

ELECTRICITY FOR GERMS.—It is reported that a Vienna dentist has discovered a means of killing bacteria in a human body by a current of electricity so weak as to be barely perceptible.—*Med. Age*.

DANGERS OF PLUGGING THE NASAL FOSSE.—M. Guisez (*Gazette des hopitaux*) says that the use of Bellocq's sound is difficult in nervous persons and children and often brings about undesirable results. 1. A man, aged twenty-two, who had suffered at intervals since fifteen from repeated hemorrhages from the gums and nose, had severe epistaxis from the right nostril. Anterior and posterior plugging were performed and renewed in three days. Three or four days after the second plugging there was great edema of the right eyelid with great swelling and pain in the right side of the face. The temperature was 102.2° F. An empyema of the antrum had occurred. 2. A woman of alcoholic tendencies suffered from epistaxis. Double plugging was applied. Two days afterward severe pain occurred, due to slight otitis, no doubt caused by the plugging. The nasal mucous membrane, he says, owing to its numerous folds and recesses, is difficult to sterilize, and the presence of septic clots is exceedingly prone to set up suppurative otitis and empyema of the maxilla. Anterior plugging only should be employed, and if necessary the thermocautery should be applied to the bleeding vessel, which is usually a terminal branch of the sphenopalatine artery.—*N. Y. Med. Jour.*

SALIVA AND ITS INFLUENCE ON GASTRIC DIGESTION.—Martin Cohn says the alkalinity of the saliva varies in different individuals and in the same individuals at different periods of the day. The average corresponds to a 0.0154 per cent solution of caustic soda. He never found an acid reaction, such as was noted by Sticker in the interval between breakfast and dinner. It has been suggested that retained products of metabolism may be got rid of by increasing the salivary secretion, but the author was unable to discover any evidences of such vicarious elimination in cases of renal disease. The digestive activity of the saliva does not cease with deglutition, but is continued for a time in the stomach. As has been shown by Van der Velden, there are two stages of stomach digestion. In the first the acidity is not sufficient to inhibit the saccharific action of the saliva (amylolytic stage), but in the second this action is arrested by the increased secretion of hydrochloric acid (proteolytic stage). It has been asserted by Sticker that the saliva has an influence also in the digestion of albumin, but Cohn does not think the experiments offered in proof of this assertion are conclusive. His investigations led him to the conclusion that the presence of saliva in the stomach is beneficial, but he was unable to determine that its presence was of extreme importance in digestion or that its absence impaired the process very materially.—*Deut. Med. Woch.*

Digests.

DENTIGEROUS CYST IN A HORSE. Dr. M. S. Hoover, Perry, Iowa. This is a form of lesion which is rarely found. Lately I met a veterinary surgeon who gave me the following account of a multi-molar dentigerous cyst in a filly about two years old. She was brought into the barn, and he discovered a running sore at the butt and in front of the right ear. This was opened up and two teeth were found and removed. They were about one and one-fourth inches long and three-fourths of an inch in diameter. The ulcer did not heal up, and it was examined again and another tooth removed; this was about four weeks after the first operation. In about three weeks a third operation was performed and a fourth tooth removed. Some six weeks after this last operation, while being led out of the barn, she fell dead, and a little work with knife and chisel disclosed the fact that a remaining tooth had been pushed, or on developing had migrated upwards and penetrated the floor of the cranium, projecting into the cranial cavity one inch, but covered by the lining membrane of the cranium. Another tooth was found, but it did not produce any pressure on the brain.—*Items, July.*

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STOMATITIS MATERNA. By George Little, M. D., Crawford, Ga. I report a case of sore mouth of a nursing woman (stomatitis materna) which I treated with sulphate atropia with signal success. The mother was apparently in perfect health, her little infant was two months old when she was seized with a severe chill, the reaction was high and prolonged, tongue, mouth and fauces felt as though they were scalded, saliva was very profuse, hot and scalding in its sensation. Aphtha soon appeared on the gums and tongue. It was obvious that I had to deal with a violent case of nursing sore mouth. All literature, with its treatment, was rather unsatisfactory—so had been recent results in this neighborhood.

I thought of antagonizing the physiological effects or symptoms of the disease, and at once took belladonna as my agent. I gave one-sixtieth grain sulphate atropia every four or six hours, and the result was almost magical. The first dose gave great relief, and the second stopped the excessive and annoying flow of saliva, which relieved patient of the intolerable burning sensation, as though the

mouth had been scalded. My local application was ten grains nitrate of silver to one ounce water, applied extensively with a camel's hair pencil.—*Med. Brief.*

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DOOLEY'S VISIT TO A MEDICAL SOCIETY MEETING.

Well, afther a long innin' on diphthery, one docthor gets up an' rades off a paper all about how some animal called a sarkooma gets on a woman an' is loike t' kill her, whin he, brave man, takes a 'lecthric light carbon an' puts in th' Virginia, an' so burns th' baste out. "Fwat's the Virginia?" says I to Doc. "Luk in yer jography, ye innocent bachelor," says he. Will, afther the woman was saved from th' sarkooma ('twas too bad) she takes down wid cancer an' doies. 'Twas discouragin' t' th' docthor. Afther he'd finished, they called on a foine, bloomin' docthoress, wid thray pigeons in her bonnet (which, mark yez, Donohue, is a sign av distinction) an' she says (after throwin' a few bookays, like, at th' presidint) that she is too tender-hearted t' use 'lecthric wires on pable, so she always sends her 'lecthric works out an' has it done be th' day. Thin a big man wid a smooth head rades off a paper too, an' 'twas a moity foine paper, for before he got through, two or three av th' docthor-esses was so overcome be th' illoquince av th' man, that they fell asleep. Thin the prisident says he wants a big attendance nixt toime, as he ixpicted some big guns av docthors t' be there from Cincinnati. It must be turr'bly dhry wur'rk radin' all thim papers, Donohue, fur afther the matin' was over, me an' Doc sthopped in down sthairs for a shmoile, an' bedad, if there wasn't half th' shpeakers av' th' av'nin' shmoilin' too. Which proves that a midical sassiety meetin's a good place t' go to.—*Chicago Med. Times.*

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HEAT-STROKE AND SUNSTROKE. It is contended by Dr. Moussoir, a French naval surgeon, that these are two diseases and not one and the same, as has been hitherto supposed. In the *Archives de Méd. Nav.* Dr. Moussoir claims to be the first observer to establish this fundamental distinction; and contends further that his discovery may result in a large saving of human life. He says, as abstracted in *The Lancet* (March 31): "Heat-stroke is a pathological condition produced by the action on the whole surface of the body during a sufficiently prolonged period of a temperature exceeding 104 deg. F., whereas sunstroke is a pathological condition pro-

duced by the action on the cranium during a period, which need not necessarily be long, of sufficiently intense solar radiation. The high temperature which gives rise to heat-stroke may be either moist or dry and may emanate from any source. Moist heat, as in a stoke-hole on board ship, brings on heat-stroke by preventing the evaporation of perspiration, while a dry heat, by shriveling up the skin into a parchment-like substance, prevents the exudation of perspiration, and most probably also produces an analogous condition in the pulmonary alveolar tissues. Heat-stroke causes its ill-effects through the superheated blood, which reacts on the nervous centers. It comes on gradually, but may simulate suddenness when the will power by which the subject was sustained is abruptly withdrawn. Stokers are able to endure a damp, hot atmosphere in narrow, ill-ventilated spaces because they work naked or nearly so, whereas soldiers on duty in the open air succumb to heat-stroke because the caloric increases beneath their thick clothing, which also hinders the evaporation of sweat.

"Sunstroke, or insolation, is not induced by high temperature, but by the intense radiation which the sun alone, owing to its enormous volume (1,200,000 times that of the earth), can supply, the chemical rays, the vibrations of which are more rapid and therefore more penetrating than those of their calorific and luminous congeners, being the exciting cause."

The French physician notes that the chemical rays of the sun can pierce white clouds freely, but are arrested by black substances and partially so by red, and he applies these facts to explain the immunity from sunstroke of negroes and people with swarthy complexions, and the diminished liability to it of the ruddy. He says:

"To produce sunstroke the rays must impinge upon some part of the brain-case, the effect being transmitted thence to the as yet unlocated heat-center by reflex action. The process precisely resembles what goes on when a perspiring scalp is exposed to a draft and sneezing coryza and other reflex phenomena quickly ensues. Covering the head preserves from sunstroke, but just as is the case with thick clothing, a helmet can assist only in the development of heat-stroke. The mean of a series of observations with suspended thermometers showed that the temperature inside a regulation helmet was 10 deg. C. higher than in the shade of a veranda. In heat-stroke the disease begins by heating the blood, but in sunstroke this condition of the circulating fluid is secondary; the fact, however, that in both affections the blood becomes superheated serves to explain the resemblance of the symptoms. Sunstroke or insolation can occur only within the tropics, because in that region alone the sun's chemical rays are sufficiently intense to produce the necessary reaction."

The Lancet admits that the doctor has established a *prima facie* case for his contention, but it does not approve of his remarks on the treatment of the disease. He insists upon excitation and antipyrin, with ice, cold affusion, and "the rest of the stock remedies as usually recommended," but discards quinin. To quote the final paragraph: "Among the predisposing causes of heat apoplexy Dr. Moussoir mentions the horizontal position, contending that the heat-rays both direct and refracted from the ground, have thus a much larger surface to act on. This would seem to supply an argument against the Indian practice of taking a siesta during the heat of the day."—*Literary Digest*.

* * *

WARTS: SHOULD WE TREAT THEM? H. Fournier (*Progrès Méd.* April 7) considers the etiology and treatment of warts, which he divides into the common warts and the plane warts of young people. These often occur simultaneously and probably result from the same source—inoculation of some sort upon a predisposed individual. The differentiation is more apparent than real, and classical descriptions by dermatologists tend only to increase the confusion. However this may be, the question of predisposition has been confirmed by several authorities. Barthelemy has seen cases in which common warts occurring on the soles, palms, between the fingers, and on the face, coexisted with vegetations.

As to treatment, cases are on record which have been cured by suggestion. Warts may disappear on suppression of one or several of them, a fact which Diday had already determined with reference to condylomata. Excision or even incision of one wart brings about a disappearance of its neighbor. Accidental contusion of neighboring parts has been known to cure warts. Superficial applications of silver nitrate sometimes will do the same. Warts may disappear of their own accord and without any treatment whatever. Djamdjieff holds the same view with reference to plane warts.

The main inducement, however, to treatment resides in the manifest contagiousness of warts, which had been previously denied by Kaposi. Warts are not only contagious as between different individuals, but also especially autoinoculable (men have isolated a form of microorganism special to warts).

Fournier recommends to proceed in a systematic manner. He fears a possible relationship between warts and cancer, and deprecates the loss of time entailed by suggestive therapeutics. He advises

to begin treatment with the larger warts and continue with the smaller ones if required. He notices the various means at our disposal: chemical cauterization, medicated collodions, etc., but gives preference to abrasion, excision, raclage, and the galvanocautery, and further recommends an additional course of constitutional treatment for neurotic patients, the chief element of which he finds in hydrotherapeutics.—*Med. Age.*

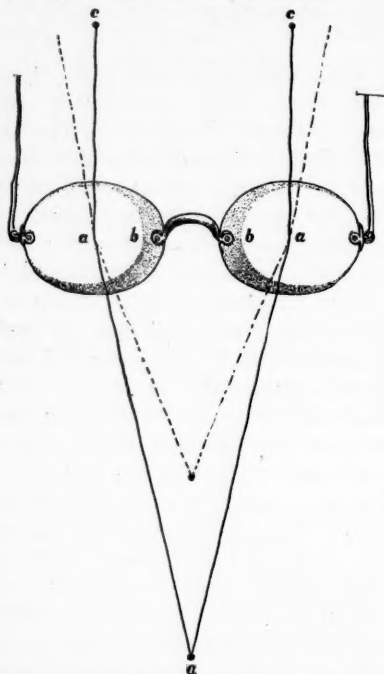
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CONVEXO-PRISMATIC SPECTACLES. By Dr. Stewart J. Spence, Harriman, Tenn. Some readers may remember that in March of last year I advocated the use of the watchmaker's eyeglass in dentistry. But excellent though that form of magnifying glass is for the purposes of the dentist, it is surpassed very considerably by the convexo-prismatic spectacles. The superiority of the latter lies partly in the fact that when both eyes are employed you get the rounded appearance of objects which is obtained by seeing partly around them (which, by the way, is produced artificially by the stereoscope), partly in that when both eyes are employed an object appears larger than when seen by only one; and partly in that it is vastly easier to hold a glass to the eye by means of spectacle frames than by the strained compression of the orbicular muscles.

The uninitiated may inquire, "but why might not two magnifying lenses be fitted with spectacle frames and worn as are ordinary spectacles?" The answer is, they would necessitate the eyes being brought so near the object as to require a fatiguing strain of the muscles which control the motions of the eyeballs. The eyes would be drawn to an unusual squint. To demonstrate this, hold a small object at about six inches from your eyes and look fixedly at it for a few minutes, when the sense of strain in the eye will become painfully evident. At a distance of twelve inches, the strain is ordinarily not appreciable.

Now, it is for the purpose of obviating this strain of the recti muscles that the prism is added to the magnifying lens. A ray of light passed through a prism, as we all know, is deflected from a straight line and turned off at an angle proportionate to the angle of the prism. So that if you should wear a pair of spectacles composed of prisms, and then look at an object six inches from your eyes, the rays of light leaving the object and entering your eyes via the prisms will be refracted (if the prisms be of the proper

degree of angle) so as to enter your eyes in parallel lines. This is roughly depicted in the figure, where *o* is the object and *e e* the eyes. The bases of the prisms point towards each other, thus their thickest portions are those proximate to the nose. Should one of them be shifted around half an inch or so you would see double. Prisms are used by opticians for the correction of strabismus. But



a pair of spectacles composed of prisms only, while allowing you to hold your eyes close to an object without strain, give no magnifying effect. Therefore for dentists' use the lens must be added. While experimenting with my optician I had the use of his lenses and prisms in separate forms, but in the crystals made to our order in Chicago, the lens and prism are but one piece, one side of the glass being plane and the other convex, thus producing a crystal which at once deflects the rays and magnifies the object.

There seems to be no law, except that of convenience, to restrict

the use of high magnifying powers; but convenience requires that the operator's face be about six inches from the tooth, and a lens of this focal distance is perhaps best for dentistry. The ordinary watchmaker's eyeglass is of higher power than this, having a focal distance of about four inches. Allowing one and one-half inches between the eye and lens, this would give but five and one-half inches from eye to tooth—rather too little when working on the molars. Besides, any slight change of position of the patient or operator throws the tooth out of focus more readily with a lens of short focal distance than with a longer one.

The glasses I have are of this six-inch focal distance and make an object seem about double the size it appears to the naked eye. This may not impress the reader as a great gain, but he must remember that the object is seen at six inches instead of twelve, which adds largely to its conspicuousness, and the gain is, in fact, simply immense.

Combination of the Spectacles. The prism must be proportioned to the lens. As a lens of high magnifying power has a short focal distance, a prism of proportionally high refractive power is required. With a prism too weak for the lens the rays of light would not enter the eyes in parallel lines, but as shown in the dotted lines of the figure. Opticians have lenses and prisms proportioned to each other, and so numbered.

For some reason, the pair of glasses which I had made for myself give a clearer image when the line of vision travels through the thickest portion of the crystals, about *b b* in the figure. When I received them the crystals were scarcely an inch separated from each other, but by expanding the bridge I parted them by one and three-eighths inches, thus causing the lines of vision to pass them at about *b b*, greatly improving the clearness of the image. I mention this, because this may and should be adjusted on the trial frames of the optician before the spectacles are made, and it were better if the line of vision be made to travel through the crystals at about *a a*.

Another error occurred with mine; the crystals were made full-orbed, which made it difficult to look over them. This was very troublesome when reaching for an instrument, or when desiring to look away at a distance; for the instruments appeared in a blur, and the eye was strained by looking through these powerful glasses at anything beyond their focal point. However, I remedied this

defect by grinding down the glasses to the shape known as "clerical." This at the same time effected an improvement by reducing the weight. I am thinking of similarly grinding away the lower third of each lens, thus making them so that they can be seen under as well as over. I am not, however, induced to this by their being still too heavy, for although a quarter of an inch thick at their bases, they are not appreciably burdensome. They might have been made thinner by being less in long diameter, mine being one and one-half inches. But perhaps it is well that instruments so costly (\$12.00) should be "chunky" enough to not easily break from falling.

By having the frames made so that the glass will rest about half way down the nose you get a larger image than when they are made to hug the eyes, and it is also easier to look over them. I found it necessary to bend the frames to correct the angle at which the planes of the glasses stood to the line of vision. Unless this is an exact right angle, objects will appear slightly blurred, and lines of print will appear either bent upwards into an arch, or contrariwise, downwards, accordingly as the crystals lean towards or slope away from the eyes. Having tested these glasses for hours at a time, both in operating and reading, I think I can safely say that they have no injurious effects upon the eyes; at least no sensible strain is experienced.

Dr. W. Booth Pearsall says: "For persons under forty-five years of age a lens of plus 6 D, combined with a prism of 12° base in. for each eye, usually gives a working distance of from five to seven inches; but the glass for one or both eyes may have to be modified, and even a cylinder introduced to suit the focus. Unless vision is perfectly normal an oculist should be consulted."—*Items, July.*

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DENTAL LAW SUSTAINED. Section 5 of chapter 378, Maryland acts of 1896, reads: "Any person twenty-one years of age, who has graduated at, and holds a diploma from a university or college authorized to grant diplomas in dental surgery by the laws of any one of the United States, and who is desirous of practicing dentistry in this state, may be examined by said board (state board of dental examiners) with reference to qualifications, and after passing an examination satisfactory to the board, his or her name, residence or place of business, shall be registered in a book kept for

that purpose, and a certificate shall be issued to such person. Any graduate of a regular college of dentistry may, at the discretion of the examining board, be registered without being subjected to an examination." This was attacked, in the case of *State vs. Knowles*, as containing the vulnerable points in the state dental law, rendering it invalid. It was argued that as the word "may" occurs twice in the section, and that as there could be no question that in the latter sentence it was employed in the usual and natural sense, the same sense must necessarily and unalterably be impressed upon its employment in the first sentence. Such being the case, the contention was that the board might, if it chose, refuse to examine one holding a diploma from a college or university authorized to grant diplomas in dental surgery, and could thus arbitrarily deny the right to practice dentistry in that state to any one holding such diploma, however skilled in his profession or however qualified to pass an examination. But the Court of Appeals of Maryland says that the law does not permit itself to be frightened out of its propriety by the hobgoblin of inconsistency, and that it itself has no hesitation in holding that the only discretion conferred is to waive an examination when the applicant is a graduate of a regular college of dentistry, and that in all other cases covered by the act examinations must be granted when application is made in accordance with reasonable rules as to time and place. In other words, it construes the first "may" as "shall" or "must," while it says that the latter "may" is required to be used in the permissive sense because it is expressly coupled with "discretion." Furthermore, it thinks the act does mean to distinguish, for the purpose of examinations, between a "college or university authorized to grant diplomas in dental surgery" and "a regular college of dentistry." In the former, it says, by way of justification, dentistry may be but an adjunct to the course, and there is no assurance of thoroughness or instruction and practical application, as must be presumed in a regular dental college, where the whole time of the students and instructors is given to the theory and practice of dental science. The principle underlying the discrimination has been recognized in numerous cases where the authority to determine what colleges are "reputable and in good standing" has been held not to be an arbitrary or unreasonable authority. With reference to the criticism that the language "may be examined with reference to qualifica-

tions" was so vague and indeterminate as to be fatal to the validity of the law, the court answers that it might well have been more specific, but that it is impossible to suppose that it refers to any other qualifications than those appropriate to and requisite for the practice of dentistry. And so the court holds the law constitutional, stating, too, that the same reasons which apply to medicine apply with equal force to the profession of dentistry, which is but a special branch of the medical profession.—*Jour. A. M. A.*

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STEEL AND SOME CONSIDERATIONS RELATIVE TO ITS USES IN DENTISTRY. By E. B. Lodge, D.D.S., Cleveland. Unlike other metals the term steel has no symbol derived from the Latin or Greek. Gold is represented by the abbreviation Au., aurum. Iron by Fe., ferrum, etc. This is because the metal steel is not found in nature as such, but is a manufactured product consisting chiefly of iron and carbon in chemical combination. The study of this metal should be preceded with a consideration of these constituents. Iron is widely distributed in nature not only as found in ores throughout the earth, but is known to exist in meteors and in the sun itself, as determined by spectroscopic analysis. Iron, moreover, forms an important constituent of the blood. Carbon, the other necessary element of steel, is widely distributed in nature. Carbon in pure state is found as diamond, charcoal, graphite, different forms of the same element. Coal and coke are largely carbon. This element, which is a necessary constituent of animal and plant life, is exhaled from the lungs with every breath in its gaseous state combined with oxygen as carbon dioxide. Manganese, silicon, phosphorus, etc., are also found in steel. When iron and carbon are chemically combined in the proportions ranging from one-half of one per cent to one and one-half per cent of the latter, we have steel, a metal worthy to be classed among the royal metals.

The progress of dentistry and surgery has been due in large part to the improvement in the appliances and instruments, which have kept pace with research and development in other lines. The dentist, the nature of whose work is such that it embraces a working knowledge of several of the arts, should be able not only to keep his instruments in repair, but likewise to construct for himself such appliance as the demands of his work may indicate. Sometimes a special form of instrument will present itself to the mind of the

operator, and with a well equipped laboratory at hand it is often expedient to avail one's self of a spare half hour to produce a new and useful appliance.

Let us suppose that one wishes to make an enamel chisel. Take from the worn-out excavators one which has a reasonably thick shank, which it is presumed is hard steel. The first thing is to anneal it so that it will be soft. This is done by heating to a dull red color and allowing to cool slowly in the air. Care must always be taken not to overheat steel, as in so doing it will be decarburized and irreparably injured. When steel is burned its surface becomes blistered or scaly. This is because of oxidation of the carbon, after which it becomes incapable of taking a fine temper. Having softened the steel, place the shank portion on the anvil, and with a few well directed blows of a suitable machinist's hammer shape the material approximately to that desired in the completed chisel. This done, take it to the lathe, on which is mounted a four-inch carborundum wheel, and with a rotary motion of the instrument between the thumb and fingers, grind down the shank to a gradual taper. Shape the chisel to the form and size desired, paying due regard to strength and proportion. The most difficult and exacting part of the work is now to be performed, viz., the hardening and tempering process. There are several methods employed in giving hardness to steel, according to the character of the particular article. All hardening of steel, however, depends upon heating to a certain temperature, followed by sudden cooling, in which the carbon and iron are crystallized in the form of carbide of iron. The steel is then said to be full hard. The amount of hardness developed in steel is in direct proportion to the amount of carbon, and the rate of cooling from the heated state. For the purpose of the case in hand cold water will answer. The addition of salt will increase the conductivity, and acid will remove oxid.

The writer's method is to hold the instrument point downward, directly above a tumbler of cold water, and to heat carefully to a cherry red with the foot-bellows and blow pipe. Just the instant the proper temperature is attained, plunge the instrument into cold water. The chisel is now ready for polishing and sharpening, the latter being done on the oil-stone in the ordinary way.

Different instruments require different degrees of hardness according to the use for which they are designed. To temper steel to any

desired hardness is an operation as interesting as it is difficult. When steel is heated above a certain point a series of colors develop upon the surface due to the formation of a film of oxid. These colors vary from a faint straw-yellow to dark blue including yellow, brown, purple and blue, with the one blending gradually into the other, as do the tints of the rainbow. This phenomenon accompanies the heating of soft steel as well as hard. For the purpose of tempering it is only of value when the steel is known to be full hard beforehand.

By a glance at the following table of E. C. Kirk's, the temperature and shades of various articles can be seen.

430° to 450° F.	Very faint yellow to pale straw.	Lancets, razors, surgical instruments, enamel chisels.
470°	Full yellow	Excavators, very small chisels.
490°	Brown	Pluggers, scissors, pen-knives.
510°	Brown with purple spots . .	Axes, plane-irons, saws, cold-chisels, etc.
530°	Purple	Table knives, large shears.
550°	Bright blue	Swords, watch-springs.
560°	Full blue	Finesaws, augers, etc.
600°	Dark blue	Hand and pit saws.

By the aid of these colors it is possible to determine accurately the quality and temper of specimens of steel of the same chemical composition if it is known that before heating the metal was full hard, as under these conditions the shades of the oxid film are an exact index. To produce an excavator point with the temper attained, and after rendering the metal full hard, it is necessary only to heat the shank carefully until the yellow color creeps along to the part desired and then to chill it suddenly in cold water. If it is desired to have the shank of an instrument less hard and brittle than the point, a very good way after having tempered the point to the degree desired is to hold the point between the beaks of a pair of moderately heavy pliers and then to direct a blow-pipe flame on the shank for a few seconds. The pliers will prevent the heat from letting down the temper in the point, and still the shank is made softer. Care should be taken to keep the pliers on the point for a few moments after the heating, in order that the heat in the shank may not pass down into the blade and thus injure it. Toughness and flexibility may be imparted to steel independent of the method

of the hardening and letting-down process. This is attained by hammering. Repeated blows of the hammer properly applied convert steel from a crystalline structure to that of a more fibrous nature, rendering the steel sufficiently flexible for certain forms of springs. Hammering of steel increases tensile strength, toughness and flexibility. This is accompanied by a reduction in volume and an increase of specific gravity.—*Ohio Journal, June, 1900.*

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TREATMENT OF PUTRESCENT PULPS WITH NON-COAGULANTS. By A. L. Swift, D D.S., New York. Read before Second District Dental Society, February, 1900. In bringing to your consideration the non-coagulant method in the treatment of putrescent pulps at a time when so much is heard of pulp-mummification, pulp digestion, immediate root filling, etc., the writer's only excuse is that he has used this method exclusively for over twelve years with such success as to fully convince him that this conservative method has not only been most effective, but that logically, the practical demonstration of a theory which has proven successful for so long a period, careful clinical record having been kept, must contain at least a germ of truth.

The theory that in the use of carbolic acid, creosote and all coagulants the coagulum dams up the tubuli and thus prevents diffused medication and consequently complete disinfection, is not new to any of you, having been the cause of much discussion, and is disbelieved by many. You will all agree, I think, that in the treatment of these, as well as in other conditions brought to our care, to a very large degree it is not so much *what* medicaments are employed, but *how*, and success depends almost entirely upon intelligent, thorough and skillful manipulation.

The writer is thoroughly convinced that the use of non-coagulants is an important factor in the treatment of putrescent pulps, as diffused medication is eminently essential, and I do not believe that diffusibility is attainable when coagulants of either egg albumen or serum albumen are employed. The marked diffusibility of the essential oils cannot be disputed; they are rich in oxygen, and deposit volatile camphors throughout the tubuli, which are all powerful in the destruction of septic and infectious matter. Oxygen stored up in the tubuli aids by its bleaching qualities in retaining the natural color of the tooth, and the non-irritating effects of these oils and

their gentle stimulating action make them especially valuable in these putrescent and inflamed conditions.

The non-coagulant essential oils most used by the writer are cajeput, eucalyptol, oil of Ceylon cinnamon and eugenol. I have been using exclusively for some time the above oils, which have been carefully redistilled and the terpenes and resinous matter removed, and also the coloring matter in the eugenol and cinnamon, to a large extent. The cajeput and eucalyptol are practically colorless, so they may be used in the front teeth without the slightest fear of discoloration. The purity of these oils, as compared to those ordinarily procurable, increases their effectiveness to a very considerable extent.

An important factor in these putrescent conditions is the use of every possible antiseptic precaution, and saliva of course must be excluded from start to finish. Having gained free access to the pulp-canal, wash out with a solution of equal parts of pyrozone and bichlorid of mercury, 1 to 1000. I do not attempt to remove thoroughly and deeply all the contents of the canal at the first treatment, believing that after disinfecting for a few days instrumentation is much less liable to force septic matter through the foramen. Frequently wipe out the canal with cotton on broach saturated with the above solution, until satisfied that the canals are as clean as possible, without taking the chance of forcible pumping—for I think we sometimes lose sight of the fact that in the use of the cotton-covered broach as a piston, the force exerted is often much greater than we imagine; it is very easy to force some of this septic matter through the foramen, hence it is not advisable to use enough cotton on broach to make a tight fitting plug or piston. After thoroughly drying out canals, pump in the redistilled eucalyptol or cajeput in front teeth, and if in posterior teeth I prefer for the first treatment oil of Ceylon cinnamon or eugenol; and insert very loosely a wisp of cotton saturated with one of these oils, and seal with gutta-percha, perforating the filling; if there be any periosteal inflammation present, paint the gums with a saturate tincture of aconite and iodine and dismiss for three or four days. In the next treatment, after having wiped out the canals with bichlorid and pyrozone solution, cleanse and dry thoroughly, and again pump in the cajeput or eucalyptol; insert a cotton dressing packed tightly and seal with gutta-percha without perforating, painting the gums again

with aconite and iodine. At the next treatment, about ten days later, the canals will usually be in good condition for filling; after again pumping in cajeput and thoroughly drying out the canals, I fill them with oxychlorid of zinc, painting the gums with aconite and iodine.

Treatment of Blind Abscess.—Drain as thoroughly as possible, syringe with bichlorid and pyrozone solution, and use cotton-covered broach, cleanse thoroughly, and after again draining and getting all as dry as possible, pump in eugenol or cinnamon if posterior teeth, if anterior teeth eucalyptol two parts and eugenol one part, inserting a very loosely placed cotton dressing, not closing foramen, seal with Fowler's stopping, well perforated, and paint the gums with aconite and iodine.

When seen about a week later, if inflammation has not subsided and there be still pus present, the treatment would be repeated as just described. Should there be no pus or inflammation present, treat as described when there was not the complication of a blind abscess. In case of blind abscess, which it seems impossible to reach through the tooth, and where suffering continues without abatement, I have found it advisable to open into the apical space with a small trephine and with the use of cocaine cataphorically, causing very little pain. After relieving the suffering, maintain the opening until root has been cleansed, disinfected and filled. In case of abscess with fistula, syringe through it the bichlorid and pyrozone solution, and after having cleansed the canal, pump through it eugenol or cinnamon, or the combination of eugenol and eucalyptol, placing in the cavity a piece of rubber such as used for vulcanite work, and forcing it until the oil appears at the fistulous opening; insert dressing in the canal and completely seal with gutta-percha, placing tent in fistula. I think it advisable to wait twenty-four hours for the disinfection of the tubuli, when the root may be filled with oxychlorid after having repeated the treatment.

Use of Cataphoresis.—I have found the cataphoric current a valuable adjunct in the treatment of the following conditions: In chronic fistulous openings and those which fail to yield readily to ordinary treatment I use a zinc rod, after the suggestion of Dr. Wm. J. Morton; mounted in the positive electrode and carried through the fistulous tract, the action of the current causing electrolysis of the metal and conveying nascent chlorid of zinc into the

tissues with most satisfactory results. I have successfully aborted incipient abscesses and controlled persistent pericementitis by using equal parts of a fifty per cent solution of alcohol and tincture of iodine applied with the rubber cup positive electrode on the gum, with the negative at the wrist, increasing the current gradually until from eight to fifteen volts were employed, with from one-half to one milliampere; contact occupying from four to five minutes. There of course follows a slight loss of gum tissue the size of the electrode, but it heals readily with little attention and occasions very slight annoyance to the patient.—*Items, June, 1900.*

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FALLACIES OF X-RAY DIAGNOSIS. We have never sought to belittle the value of Röntgen-ray photography in diagnosis, but we have felt that there was danger of its being overestimated. Such a startling and unprecedented novelty as a means of seeing into and through opaque objects could not fail to impress unduly those enthusiastic individuals—and they exist in our profession as well as among the rest of mankind, though not, it is to be hoped, in quite the same proportion—who voice their unquestioning credulity by such a cry as, for example, "the machine can't lie," the "machine" being either an ordinary photographic camera or the apparatus employed in making Röntgen pictures. But it has long been known that common photography is capable of distorting the truth to a grotesque degree, and it seems that the Röntgen-ray picture may do the same thing. This is most cogently set forth in the report of a committee appointed by the American Surgical Association three years ago to report upon the medico-legal relations of the X-rays. The committee's report was presented at the association's recent meeting.

Among the instances of erroneous X-ray observations reported are the following: 1. Dr. B. Farquhar Curtis's case in which a headless pin was supposed to have lodged in the œsophagus, and a scratch on the glass under the gelatin caused what it first seemed to be the shadow of the pin. Fortunately, it was perceived that the outline was too irregular to be that of a pin, no operation was performed, and the pin was passed by the anus. 2. Dr. W. J. Dodd reports the case of a man who was shot in the upper part of the thigh. The scrotum was filled with blood, and a fluoroscopic examination indicated what appeared to be a bullet imbedded in

the testicle, but an operation showed that the testicle, though diseased, contained no bullet. 3. In a case mentioned by Dr. W. L. Estes some bits of clothing, coagulated blood, etc., made a shadow which was supposed to be that of a bullet. 4. Dr. C. Fenger reports a case of two ineffectual operations for the removal of a needle, the situation of which was apparently shown by the X-rays, but which could not be found. 5. Dr. J. E. Moore writes: "Yesterday an ineffective operation was performed by a very competent surgeon. The skiagraph showed an open safety-pin in the trachea, just below the third ring. An opening and thorough search in both trachea and œsophagus failed to reach the pin." 6. Dr. John Owens reports that in a very troublesome case of fracture of the radius and ulna near the wrist, in which one of the bones was wired, the Röntgen picture seemed to show that the wire did not pass through the fragments. 7. Dr. F. S. Watson relates a case in which pictures taken at different times showed a needle in the foot in various situations. It was found at last, but not in the spot shown in any of the pictures. 8. In the case of Dr. De F. Willard's, Röntgen pictures taken at different angles indicated the situation of a bullet in the knee joint, at the inner condyle, but it was found firmly imbedded in the posterior surface of the tendon of the patella. 9. Dr. R. H. Reed has reported a case of faulty localization of a swallowed pin leading to fruitless exploration of the stomach and œsophagus by gastrotomy and a subsequent decision to perform laryngotomy, which was prevented only by the patient's dying on the table from the rupture of an abscess into the trachea. The pin was found at the bifurcation.

The committee's data show clearly that our present ability to draw accurate conclusions from Röntgen-ray pictures is often very limited, especially in cases of fracture. There is great danger that misleading, pictures, which may be made either erroneously or by design, may be admitted as evidence in malpractice cases; yet how untrustworthy they are when unsupported by other evidence, is shown by the facts that good clinical results in fracture cases, without impairment of function or palpable deformity, may be made to appear very bad ones in the pictures, and even that fractures may be shown that have no existence, while others known to exist in a recent stage are not shown. Clearly no conclusion in fracture cases can be invariably based upon Röntgen-ray photography alone, and

it is well that such a body of surgeons as the American Surgical Association has so expressed itself by unanimously adopting the conclusions reached by committee.—*Ed. in N. Y. Med. Jour., July-1900.*

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PHILOSOPHY OF MASTICATION. By Dr. Geo. B. Snow, Buffalo, N. Y. Read before Seventh District Dental Society of New York, April 24, 1900. Artificial dentures must in their construction be regarded from two standpoints, the esthetic and the mechanical. It is not enough that the teeth are of the proper shade and shape to correspond with the age, temperament and complexion of the patient, but in their arrangement three purposes, entirely different, must be carried out. First, they must be so arranged that they will contribute their share toward giving a pleasant expression to the features. Second, they must be so disposed that mastication will be well performed, and all the stability possible must be given to the denture for its efficiency. Third, the production of the sounds necessary for speech must be considered. The first and second of these conditions will depend upon the correct arrangement of the teeth themselves, the third to a great extent upon the correct conformation of the lingual surface of the plate. At the present time attention will be called to the second condition only.

The mobility of the mandible and the variety of its movements are well known. These movements may be divided into three classes, necessary for the performance of three acts, as follows: *Prehension*.—The mandible being thrust forward, bringing the cutting-edges of the incisors together, as in biting off a morsel of food. *Attrition*.—The mandible being depressed and moved laterally outward, then elevated to bring the opposing teeth in contact, and moved laterally inward to comminute the food between the teeth until the original central position is again attained, when we have,—*Occlusion*.—The cusps of one set of teeth being received into the sulci of the opposing set.

The following terms, relating to certain peculiarities in arrangement that are noticeable when a perfect set of natural teeth is examined *in situ*, will also be used in the discussion of this subject: The lower incisors are much narrower than the upper ones, and are set upon a smaller circle, their cutting-edges falling behind those of the upper incisors, and usually passing upward, so that the opposing teeth overlap one another to a greater or less extent. This con-

dition is known as the "overbite." In some instances it is not present, the teeth meeting edge to edge. In other cases it is excessive, the lower incisors touching the gum behind the upper ones. A certain amount of it is desirable, and for the purposes of this paper a normal overbite may be defined to be such an amount of overlapping of the lower incisors by the upper that the teeth may act in prehension after the manner of shears. If the teeth meet edge to edge they resemble nippers in action and are not so efficient in use.

As a consequence of the narrowing of the lower incisors, all the lower teeth are situated in advance of the upper ones, and the center of each bicuspid is in line with the interspace of the opposing teeth, its mesial and distal articulating surfaces meeting the distal and mesial surfaces of its two opponents. This is called the "interlocking of the bicuspids."

A lateral view of either an upper or a lower jaw, with its teeth in position, will show their occluding surfaces not in a plane, but a curve; convex for the upper jaw, concave for the lower. On account of the "overbite" there is more concavity to the lower articulating surface than there is of convexity to the upper. The front of this curve is nearly horizontal, but that part of it corresponding to the molars has usually a very decided upward turn, which has received the name of the "compensating curve." The reason for its existence is better understood after studying the peculiarities of the temporo-mandibular articulation.

In each of these joints it will be remembered there are two synovial sacs, separated by an interarticular cartilage, the lower sac being used for the ginglymoid or hinge-like movement of the mandible, the upper sac when it is either protruded or moved laterally. In the latter case the cartilage moves with the condyle, forward and downward over the eminentiæ articulares; the amount of descent varying with the depth of the glenoid fossæ and consequent prominence of the eminentiæ. These are said to depend, again, upon the length of the cusps of the teeth and the amount of overbite, the glenoid fossæ being quite deep when there are long cusps, long overbite, and slight lateral movement of the mandible, and shallower when the cusps are flat, the incisors meeting edge to edge, with the lateral movements of the mandible free and unobstructed.

In the movement of prehension the mandible moves diagonally forward and downward, its motion in front being governed by the

sliding of the cusps of the bicuspid over one another, and in the rear by the movement of the condyles upon the eminentiæ articulares. If the articulating surfaces of the molars formed a level surface they would be separated by this movement, but by means of the compensating curve they remain in contact. And if the amount of overbite is not excessive, the incisors and second molars may touch their opponents simultaneously in the act of prehension.

In the movement of attrition the condyle on the side toward which the mandible is thrown remains in its fossæ, having only a slight movement—partially rotary, partially ginglymoid. The other condyle slides forward and downward, with much the same movement as in the act of prehension. And by means of the compensating curve, contact of the teeth on both sides of the jaws is possible as they come together in mastication.

In the movements of attrition the lower teeth have rather peculiar movements. Taking into account the lateral swing of the mandible alone these movements are circular, but they are made from two centers, the condyles. The lateral movements of the incisors are thus not in a straight line, but outward and forward from the center on either side, in curves, as one or the other of the condyles forms the center. With the bicuspid or molars the movements of the lower teeth upon the upper are almost directly across the line of the alveolar arch on that side, the condyle of which is serving as the center of motion. But at the other side the movement is forward and inward and nearly on a line with the arch. Mastication is performed much more efficiently upon the side where the opposing teeth move crosswise, and we find that if a morsel of food is on the right side of the mouth, for instance, the mandible in the act of chewing it is instinctively depressed, thrown to the right, brought up against the morsel, and then returned to the position of occlusion.

When the teeth are in occlusion the cusps of the lower bicuspid and molars are received into the sulci of their opponents, and the buccal cusps of the upper teeth are out of contact, as they overhang the lower teeth. In the act of attrition the cusps penetrate the food and touch as the teeth are brought together, and the space between the sulci of the opposing teeth is filled with food, which is almost entirely cut off from the surrounding mass. Then, as the returning lateral movement brings the teeth into occlusion, that which is im-

prisoned between the sulci is ground into a pulp. If the grinding surfaces of the teeth are flat and smooth they are thereby rendered much less efficient in mastication.

To obtain the best results in the construction of artificial dentures the points discussed should be well understood, and the arrangement of the teeth should be such as to comply with the conditions and obtain the results hereinbefore mentioned. Certain limitations are imposed by reason of the instability of artificial dentures, the principal one being the amount of overbite which is allowable. In nature, the teeth being firmly set in the jaws, the overbite is often so great that when the teeth are in the position of prehension there is no contact except with the incisors. This condition of things, with artificial dentures, would inevitably cause their dislodgment. And this will occur with a very limited amount of overbite if the use of the compensating curve is disregarded and the articulating surface of denture made flat; and most of all, if sufficient clearance is not allowed between the upper and lower incisors and cuspids.

It must be remembered that in what may be termed a normal denture the compensating curve and overbite are proportional to the length of the cusps of the bicuspid. In dentures of the nervous temperament, for example, we will find long, thin cusps, a corresponding amount of overbite, and also of the compensating curve. In those of the lymphatic temperament, to go to the other extreme, the cusps are short, and there is less overbite and a flatter articulating surface. But with artificial teeth the shape and length of the cusps is not always, nor, indeed, often, a very close copy of those of the natural organs, and they are usually so short and fit together so poorly that but little compensating curve is necessary or advisable. Still, a certain amount of it is a necessity.

A manufacturer of artificial teeth was lately asked the question, if in designing his tooth-molds any attention was paid to the manner in which the cusps of upper and lower bicuspid and molars would come together, or whether a certain lower set was designed with reference to its being used with and producing correct occlusion with a certain upper set. It appeared from his answer that little or no attention was paid to this matter. The upper and lower sets were matched up by an employe who knew or cared little about the articulation of the teeth, and only looked to the appearance of the sets when mounted upon wax cards.

The late Dr. Bonwill recognized this fact, and when setting up artificial teeth he always ground the cusps to obtain the articulation he wished. Indeed, it is said that he always made a point of grinding them enough, at least, to remove the smooth, glassy surface, averring that the roughness left by grinding made them more efficient for mastication. On the contrary, many dentists seem to attach a sacredness to the cusps of artificial teeth, and never touch them with the wheel unless actually compelled to. From what has been said of the way in which they are made it will be seen that this position is absurd, and that if anything can be gained for the efficiency of the denture by grinding the cusps of the teeth it is better to do it.

In the arrangement of artificial teeth the first consideration is, of course, the esthetic effect. They must be of the right size and shade and of the proper shape; and in arranging them it is well to set up the upper incisors, cuspids and bicuspid, and try them in the mouth of the patient, to insure their being in harmony with the play of the features. Then the lower second bicuspid is placed in position, central with the interspace between the upper bicuspid. Next the lower first bicuspid is added, followed by the lower molars. The upper molars are then placed, pair by pair, and as each addition is made assurance must be had that it does not interfere with the proper articulation of the teeth already in place; and each tooth as it is added is shifted in position and inclination until the right effect is produced. The cuspids and incisors may be added at any time after the bicuspid, keeping them out of the way so that nothing will interfere with the proper contact of the cusps as the mandible performs its various movements. With the correct arrangement there will be contact at both sides of the mouth with any movement of the mandible, whether forward or lateral, and when the result is attained the greatest possible stability will have been given to the denture, so far as the articulation of the teeth is concerned.—*Cosmos, June, 1900.*

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BEANS, THEIR MORPHOLOGY AND FOOD VALUE.
Morphology of Beans.—Taking the bean botanically, it is the seed of the phaseolus species of the leguminose family. The seed is made of the germ and two lobes, called cotyledons, which are seed leaves loaded with starch to serve as food for the germ and for

animals. The points of interest are: The seed is covered with a thick skin or envelope, which is made up of a set of beautiful prismatic crystal-like shapes of cellulose placed side by side longitudinally, so that these ends make the outside and inside surfaces of the skin or envelope and appear very much like the tops of the Giant's Causeway crystals of traprock. In the middle of each prism is an hour-glass contraction, which is in the central axis and is surrounded with clear cellulose, which fills out the contour. The crystal elements of the membrane are quite insoluble, polarize light, and resist the digestive influences of the alimentary canal. They are found in large quantities in the excrement of bean-eaters, and furnish a sure proof, when found, that beans or peas entered into the diet of the case under examination. In the Lima beans the lateral surfaces are narrowed, leaving tack-like heads or irregular shapes at both ends. Of course the membrane thus made cannot have the strength of the membrane of the common white bean, as the prisms do not touch along their sides. The epithelia of the common bean have remarkable interdigitations. When interlocked, unsoftened, and unseparated by cooking they must hold together the parts over which they are spread with great firmness. Indeed, if beans uncooked sojourn in the meatus of the ear, in the nostril or in the alimentary canal, they remain unchanged, more or less, for a time, and are voided almost in the same condition as when they entered. No sane person would think of eating mature dry beans for food. The toughness, thickness and peculiar structure of the envelope of the bean make it so strong an obstacle to digestion and assimilation. The substance of the bean is made up of starch germs, connective tissue, spiral vascular tissue, etc.

The starch is not peculiar in its appearance, and is readily recognized. In a section of an uncooked bean the starch grains appear in globular masses of varying sizes, filling up, apparently, the meshes of the connective fibrous tissue, which is quite thick, fibrous, homogeneous, polarizes light, and is probably cellulose or woolly fibre, very resistant to outside influences of any kind. In a section of raw Lima bean the meshes appear as in one continuous network, making areolæ; but when cooked by baking or boiling there is a great change wrought, which is surprising, for the starch grains are found to be contained in sacs of thick cellulose, which are distant from each other and are of various sizes, shapes and

contours, containing a variable number of starch grains. They are globular, pyriform, elongated, compressed, apparently triangular, sometimes reminding of *diffugia cratera*, sometimes of *pelomyxæ*, and so on, but all covered with a transparent envelope or sac of cellulose, which looks like the clear margin of *gemiasma verdans*, *rubra* and *plumba*, found in malaria. The thickness of this coat is worth attention. Taking an average sac, I found it measured 8.5 mm., while the thickness of the clear investing sac measured 0.5 mm., so that the proportion for the case measured would be 8.5 to 0.5, one-seventeenth of the whole diameter for the investing sac; or to put it differently, if the sac were an egg two inches long and had a proportionately thick shell, it would be one-quarter of an inch thick, which certainly would be an extraordinary thickness for a hen's egg, and make it tougher than an ostrich's egg, one of which exploded at the Peabody Museum, New Haven, the other day, from the pressure of internal gases, and came near killing the scientific gentleman who was studying it. It is probable that it takes a great force to explode one of these sacs of baked beans. The fact that so few of the sacs are found ruptured after cooking and after migrating through the alimentary canal shows a great power of resistance to digestive agencies. In beans not thoroughly cooked the diagnosis is based on the following: 1. Action of polarized light. 2. Condition of the starch contained within the sacs.

First, Polarized Light.—On the uncooked starch grains polarized light sets with great beauty, but when the starch is cooked polarized light has no action, hence a good test of cooking is by polarized light. As the beans' starch grains are cooked they polarize light less and less, and when cooked (to repeat) polarize it not at all; so one can judge at once by polarized light as to whether beans are cooked or not. The purple selenite stage slip is the best.

Second, Condition of the Bean Starch Grains.—Before cooking they are clean cut, distinct; after thorough cooking they lose their outlines and forms, blend into one homogeneous mass that is granular, devoid of structure, sometimes striated in coils, looking much like the solid extract of the herb as found in pharmacy, only not so deeply colored. The amount of disintegration, breaking down and homogeneity constitute a very good test for the thorough cooking of baked beans.

Boiling the beans serves to coagulate the protoplasm into a

nucleus, leaving a clear ground-work about it; the grains are swelled and disturbed more than in baking. These morphological changes are easy to study. A good one-quarter inch objective, a two-inch eye-piece, with a slide, cover, stand and toothpick, are means ample enough to verify these statements from off one's own table. With the toothpick small portions of the baked beans can be transferred to the slide, a little water and manipulation with the cover will disturb the specimens into an even field, and the slide is ready for the microscope. Those who have a polarizing apparatus can test the specimens with it. The writer hopes that more attention will be paid to the morphology of food in time to come, for certainly it furnishes a field of study always present, easy to get at, and of vital importance to the human race in more points than the esthetic one. This leads to the physiological view.

Baked Beans in Relation to the Functions of Digestion and Assimilation.—(Provided they are in good order and thoroughly cooked, so as to furnish the simplest problem of solution by the functions named; provided the cellulose structures are softened, macerated and separated; provided the salivary liquids are thoroughly mixed in the mouth, and the beans thoroughly ground by the teeth.) In the stomach the beans digest little; in the intestines the bile, the pancreatic and intestinal fluids act on the starch, complete the changes already begun by cooking, mastication, and gastric juices, and turn into glucose, in which soluble condition it is taken up into the portal circulation and transmitted to the liver.

The other elements of the beans that are made soluble are also absorbed into the system, and it is fed and warmed by the beans. The longer this food stays in the stomach the more it ferments. For it must be remembered that the alimentary canal is a great reservoir of fermentative vegetations as a rule, so that sedentary persons have more trouble with this article of food. Persons who live out of doors, and who move about actively and work hard, digest vegetable foods better than do the sedentary, as the food is accelerated in its passage through the alimentary canal and the indigested remainder has less time in which to ferment. Hence when we hear of a Maine lumberman thriving on baked beans, which, frozen solid by the barrel and cut with axes, are then cooked, we lay the benefit to the fresh air of the woods and the violent exercise.

From what has been said it must be admitted that baked beans are not easy to digest, and that there is good reason for the unusual amount of intestinal gases that accompany their digestion. This gas is usually carbonic acid; it is formed inside the bean sacs, and they must explode like microscopic dynamite bombs in the intestines! If we consider that nerve force is the agent by which digestion is regulated, if not produced, other things being equal, it takes more nerve energy to digest baked beans than some other kinds of food, and, of course, there is less energy left to run the rest of the economy in the departments where nerve force predominates, hence the cerebral centers cannot act with that efficiency and energy that they could if the system was fed on a food that took less nerve force to digest it. To be sure, allowance must be made for difference in individuals in the power of digesting baked beans and other articles of food. Some will digest their meals when others cannot, because their organs are in remarkably good condition to do their work; but even so, it is not profitable to abuse a good digestion.

Baked Beans as a Cause of Disease.—Some years ago some unique but most valuable experiments were made as to baked beans. A physician and six strong, healthy laboring men were placed on an exclusive diet of baked beans, coffee and milk. They were sedentary, save that in the morning and evening they all marched out on the street in military order for exercise. Almost immediately there was diarrhea, followed in all the cases (in about fourteen days) by consumption of the bowels. If any one doubts this, he is asked to live on the same diet exclusively for the same time and report results, which were so uniform in the above cases that there is no hesitation in predicting like issues. This may be called too severe treatment of any food, and that no food would stand such a test, because so unnatural. The diarrhea was caused by the alcoholic fermentation of the baked beans, producing alcohol, carbonic acid and vinegar. The alcohol showed itself by the fuddling of the men, while it did good by arresting for the time the active process of the fermentation. The results of the action of the alcohol were: 1. Distension of the bowels by gas. 2. Paralyzing them by direct contact. 3. Paralyzing the epithelia of the mucous membrane, making them, as it were, drunk, causing a thickened catarrhal condition; hence the profuse liquid discharges, and later on some sulphuretted hydrogen.

It is always possible to detect the eating of baked beans by a microscopical examination of the forms found in the feces of the eater. The beautiful cellulose prisms or double tack-headed elements of the outer membrane of the bean or pea will tell the tale, while an abundance of the sacs filled with starch grains, sure to be found, will testify to the same thing. At one time the writer verified this in his own person, and was astonished at the quantity of undigested beans and other food that ran the gauntlet of an alimentary canal which was called healthy. Once the writer visited the Massachusetts State Prison. Passing by the latrine he saw a pile of baked beans, large enough to load a horse-cart, most of which had passed through the digestive organs of the prisoners. Certainly if this exhibition meant anything it showed that these baked beans are a poor prison ration. I think it would be more rational to feed the beans to animals whose organs are better adapted to digest them than man's, and if need be let man eat the animals. If the sacs of the bean grains could be ruptured before eating considerable objections would be removed. They might be crushed between rollers or pounded in a mortar, or mashed like potatoes. If bean-eaters would take time to thoroughly cook and chew them the situation would be improved. But probably one great recommendation of baked beans is their smallness, so that they are swallowed whole, easily, and thus save time in eating. If man had the gizzard of fowls, or stomachs like bovines, this might answer; but it seems to me we do ourselves harm in the end by imperfect mastication, which fails to crush the bean sacs and mix the juices of the mouth with the starch of the bean, and so prepare it for the digestive processes it should undergo; for if they are not prepared a good portion is wasted.

Importance of Cooking.—The writer has no idea of influencing the abandonment of baked beans as a food, but he would like to put in a plea for better cooking. It goes without saying that the average cooking is bad. 1. Soak a quart of beans over night in two quarts of cold water. 2. In the morning turn off the water, add fresh water, and boil them till the membranes begin to separate; turn off the water. 3. Put the beans in a baking pot with half a pound of salt pork buried in the beans; add two tablespoonfuls of molasses, and cover the whole with water. Bake in a slow oven all day; a baker's oven is best. Watch the beans, and if they

become too dry add more water. When thoroughly cooked it will be known by the softness of the beans in the mouth between the teeth, by the taste and by the microscope showing the starch grains broken up and mixed in one homogeneous mass that will not polarize light with a selenite plate. 4. Take time to eat and chew thoroughly.—*Albany Med. Annals.*

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DENTISTRY IN CUBA. C. W. Orland, D.D.S., Havana, Cuba. Read before Eastern Indiana Dental Association, May 3, 1900. When one first arrives at this Isle of the Sea the most striking thing is the condition of the teeth of the natives. To an American, who has been used to seeing a public that takes reasonable good care of the teeth, it is somewhat appalling. The lower classes of the United States have bad teeth, or rather they let them go until they become bad, but the lower classes of Cuba are something awful in this respect. From their general appearance as they are seen on the street one immediately comes to the conclusion that they never go to a dentist under any circumstances, and this is true in the great majority of cases. When a tooth gets to aching very badly they put upon their faces a strong plaster for the purpose of producing a counter irritation, and it certainly fulfills its mission, for it takes the skin off the face, leaving a great red spot that contrasts very strongly with the dark color of the surrounding skin. This plaster is a leaf of some kind, though I have not been able to learn of what variety, and it is applied by sticking it to the face. It is no uncommon thing at all to see people on the street thus decorated or to see them after the decoration has been taken off and only its marks remain.

It is among the middle classes, however, that one is most surprised. In the stores you will be waited upon by a rather nicely dressed, well appearing man, who when he opens his mouth may display the most unclean, snaggle-toothed condition imaginable. He may not lack only some of his front teeth, but there will probably be a number of decayed roots that are half overgrown with gum tissue, displaying a source of filth most unsettling to behold. The possibility or advisability of having the old teeth taken out and the mouth cleaned up and a bridge or plate put in never seems to occur to him. Another man may simply have lost a number of his front teeth, yet he will go for years with that ghastly vacancy in

his mouth, and his appearance spoiled, without having anything done to better his condition, and this also applies in a great number of cases to young ladies. They all seem to lack the personal pride that would prompt an improvement, yet they are the most fastidious people about their dress and appearance in other ways. A partial excuse for this toothless condition is the excessive charges that the dentists have made in the past. Until five years ago it was impossible to get a plate made by a dentist of reputation for less than \$100 in gold, and all other charges were in proportion, so that the ordinary individual was practically debarred from the benefits of dentistry; and since that time there has scarcely passed enough time to educate the people in the matter. The people of the upper and wealthy classes are on the same plane as the people of the better classes in our country; they are clean and take good care of themselves in all respects, and this, of course, includes their teeth. Most of this class are in the habit of going to the United States or France very frequently, and when there they have their teeth attended to.

Shortly after my arrival in Cuba I met a rather well informed American, who had lived in these climates for about fifteen years, and after learning what my business was he remarked that I ought to find a rather good field of work among the newcomers, as they would be very apt to need the services of a dentist badly after a few months' residence in the climate. I answered that I did not understand what effect the climate could have upon the teeth, that a man was liable to decay of the teeth and other oral diseases in any climate, and that I could not understand why it should be worse in one country than another if he kept himself clean. He replied that he could not explain the why and wherefore, but his experience was that such was the case, and he believed I would find it so. I attributed his remarks to the superstition of the laity, though of course I could not forget them. Since then I have found that he knew what he was talking about, even if he did not know the reasons for it. It becomes a self-evident fact to the practicing dentist that we have ailments of the mouth here that can be attributed directly to the climate. The most conspicuous of these is a species of oral catarrh; the mucous membrane of the mouth and gums becomes red and swollen, the teeth are sore and slightly loose and have quite a quantity of tartar at the gum margin, which collects very rapidly, the breath is fetid, the saliva is thick and ropy and has a slightly excessive secretion, and every-

where in the mouth is a thick grayish layer of what I have taken to be dead epithelial cells. This condition is most frequent among foreigners, and is said to be brought on by the change of atmosphere, and so it is, indirectly; but directly it is the result of the low acclimatizing fevers that all newcomers are constantly having, so slightly sometimes that they are hardly noticeable. The disease is seen frequently among the native children, and I believe that it is want of attention to it in the children that is the cause of such bad teeth among the adults. It readily succumbs to treatment if taken early. The treatment, of course, is a thorough cleansing of the teeth, and I have been prescribing a $\frac{1}{2}$ per cent solution of carbolic acid in water, to be used with the toothbrush; instructing the patient to scrub the gums, cheeks and tongue as well as the teeth. I tell them also to use it promiscuously as a mouth wash.

Accompanying this catarrhal condition one usually finds a considerable amount of decay of the black, rapid-going kind; it is soft, and in excavating one can take great quantities with one stroke of a good-sized spoon excavator. In most cases the decay has progressed to such an extent that the pulp is involved, though it frequently has shown no indications of it.

All of these conditions are found very frequently among the American soldiers here, and it is hardly to be wondered at, for the private soldier is usually a man who has not taken a great amount of care of his teeth, even when at home, and after he enlists he finds that with his limited salary it is impossible to do so, and for this reason it is little less than criminal for our good Uncle Sam not to do it for him. When a soldier enlists one of the most rigid points of examination is his teeth, and yet after he has enlisted there is absolutely no provision made to take care of them.

The legal prerequisites of the practice of dentistry, or any other profession, in the island of Cuba are enough to make a man think twice before he undertakes their fulfillment; that is, if he realizes what he is undertaking. Cuba to-day is working under an old law regulating the practice of dentistry which was passed in 1848. It seems simple enough and would be simple in any other country on the face of the globe, but anything that requires business with the Cuban officials is always a labor that tries one's patience and Christianity to their fullest extent. The law as I understand it is this: The applicant must first make application to the Secretary of Pub-

lic Instruction for the privilege of standing an examination in dentistry before the examining board of the University of Havana, three of whom are physicians and the other two dentists. The secretary gives him an order to the Dean of the University for the examination. With the order from the secretary the applicant goes to the university and again makes formal application for the privilege of standing the examination, depositing with the dean a fee of \$40, which constitutes the examination fee. The dean sets the day for the examination, which is usually within some reasonable period. The examination is fair, though pretty stiff. The intention of the law is all right; it is the everlasting delay, indifference and negligence encountered at every turn that are so irritating. This, by the way, is characteristic of the people in all their doings, when the matter before them is purely a matter of business, and especially is this true among officials. Any diploma that one may have is of absolutely no use, as it is not recognized. The examination is always compulsory. The spirit met with through the entire ordeal is not one of assistance by any means. If one makes a mistake in the numerous technicalities it is his mistake and not the officials', and they say nothing, even if a word at the proper time would save all the trouble. This is the spirit all foreigners meet if they desire any professional examination. My application laid on the table six weeks before I heard a word from it, yet I knew of a Cuban who made application and got the examination in the meantime. These same people if met with socially would probably put themselves to a great deal of trouble to accommodate you, but it is not so in business.

The difficulties met with in everyday practice are in themselves no small thing. It is absolutely impossible to impress upon the Cuban the importance of keeping an engagement. An engagement made at 9 o'clock is sure to be kept at 10 if kept at all that day; and for this reason the practice of making engagements has long since been abolished, though each newcomer has to learn it for himself. This want of punctuality holds also in the treatment of teeth and becomes very annoying.

Another difficulty is supplies of all kinds. Many of the modern things in everyday use in the States have been unheard of here; for instance, when I came down I brought with me a few carborundum stones, and they were the first ever on the island so far as I know,

at any rate they were not in the dental depots, and several of the prominent dentists had never seen them. The stocks of teeth are the worst difficulty of the lot, not because there are not enough of them, but because the assortment is so poor that it is next to impossible to match a tooth if it is the least bit out of the ordinary. The expense of all material is a little hard to bear at first, but one gets used to it after a time; it is better to pay the extra charges in money than to put in the labor to get things through the custom house; there is a duty in any event of 40 per cent on nearly everything we use.—*Indiana Journal, June, 1900.*

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PINK SPOTS ON TEETH. By J. A. Fothergill, L.D.S. Read before Odontological Society of Great Britain. The patient, aged 19, complained that her left maxillary central incisor was becoming pink. On examination I found on the labial surface a pink spot commencing near the upper termination of the mesial border and extending about one-third across the tooth. The enamel over this portion appeared to be very thin, and the pink color to be due to some vascular body showing through. To the left of the pink spot, and quite near the gum margin, there was a very minute perforation of the enamel, in which soft tissue could be seen. This tissue was slightly sensitive. The edges of the perforation were quite thin and fragile and suggested absorption.

There was not the slightest sign of caries about the tooth, which was quite firm, and with the exception of the above-described peculiarities perfectly healthy in appearance. The patient first noticed the discoloration about a month before I saw her. She had no pain, but slight tenderness on biting very hard and when brushing teeth. There was no history of injury. Rather more than three weeks afterwards I saw the patient again. The perforation was considerably larger. The pink spot had also increased in size, and there were two minute perforations of the enamel within its area. I put the point of an excavator into one of them and removed a thin bridge of enamel from between the perforations, disclosing a mass of vascular tissue. I froze the latter and scooped out as much of it as possible with a broad excavator. There was so much hemorrhage that I could not see the relation of parts very well, so I put a dressing of sandarac and tannin on cotton wool into the cavity and left it till next day. On removing the dressing I found the cavity was

coextensive with the pulp chamber. Gas was given and an extractor passed up the root; unfortunately the extractor broke and a portion was left behind. As I was unable to recover the broken piece I removed the pulp as far as possible, put in an antiseptic dressing and filled the cavity with gutta-percha.

The patient went to London and I heard nothing of her for ten weeks, when she wrote to say the tooth was becoming black. I saw her soon and on removing the gutta-percha found that the discoloration was due to the decomposition of pockets of the vascular mass which ran in the direction of the cutting edge of the tooth and had escaped my notice. These remains of soft tissue were removed, the cavity washed with peroxid of hydrogen and partially filled with cement. A porcelain inlay was made, and the tooth presented a good appearance, which it retains to the present time.

I sent the small pieces of tissue removed from the tooth to my cousin, who prepared a number of microscopic sections. These for the most part show a structureless mass of small cells, but the sections from one piece show papillæ covered with epithelium. The interesting question is, of course, what was the origin of the vascular growth? It had every appearance of originating in the pulp, and I certainly think it must have done so, as no connection with any of the external structures could be found, and the fact that no recurrence has occurred since the removal of the pulp seems conclusive; but the difficulty of accounting for the epithelium remains. This is sometimes found in polypus of the pulp, but its presence is said to be explained by accidental grafting from the surrounding mucous membrane.

On August 12 the patient drew my attention to the right central, as she thought the same condition was appearing in it. There was a very slight rosy tinge just at the gum border. When a probe was passed under the gum it entered a cavity about a quarter of an inch above the free margin and a sharp edge could be felt. Pressure on the gum over this spot gave pain. As there seemed reason to believe that this tooth was following the example of its fellow, and the patient was very anxious to have something done to save it, I drilled into the lingual surface and removed the pulp under gas. The pulp did not present any abnormal appearance, but I was able to trace a communication between the pulp chamber and the cavity under the gum. The tooth remained without change until last

spring, when it became rather loose and tender and an alveolar abscess developed above it. When this was lanced a quantity of thin fluid containing cholesterol scales escaped and the trouble subsided.—*Brit. Jour. D. Sc.*, July, 1900.

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DENTIST AND PER CENT. By G. B. Squires, Ph.G., D.D.S., Somerville, Mass. After the article, "Dentists as Prescription Writers" (*Cosmos*, March; *DIGEST*, April, 1900), was published the author received several letters from dentists, asking for information in regard to per cent. In the *Cosmos* for June, 1898, there is a short editorial on the same subject, showing that there are many dentists who do not understand the meaning of per cent, and therefore are unable to prepare a certain per cent solution of a substance or to find the amount of a substance in an already prepared solution of known percentage.

A professor in one of our dental colleges, while delivering a lecture to the senior class, informed them that two and a quarter grains of cocain hydrochlorate in a dram or eighteen grains in an ounce of water made a four per cent solution. This statement, although practically correct, is rather arbitrary, and subsequent conversation with the class showed that only a small minority knew why it required this particular amount to make a four per cent solution.

In the editorial previously referred to there is a paragraph which reads thus: "The Troy ounce of water, however, weighs 455.69 grains, so that if the percentage solution were to be made by weight, a one per cent solution would be made by adding 45.6 grains to one fluid ounce of water." The above statement is not correct—evidently a misprint—but the present writer ventures to make the statement that a good-sized minority of the readers of that article took the figures for granted, and would not have been able to verify them if they wished. As a matter of fact one per cent of 455.69 grains is 4.5569 grains, or expressing it approximately by cutting off three of the decimal figures, 4.5 grains instead of 45.6 grains.

The following is an attempt to review certain rules in percentage, which all dentists probably learned while in the grammar school, but which they now fail to apply practically. There are some who seem to think it a complicated process to find, for example, the amount of cocain hydrochlorate in an ounce of a four per cent solu-

tion, but who could easily figure it out if they realized it was merely a simple example in percentage. Per centum is from the Latin *per*, by, and *centum*, hundred, meaning by the hundred. Therefore percentage is the process of computing in hundredths. The percentage of a quantity is so many hundredths of it, as is indicated by the per cent—*i. e.*, two per cent of a quantity is the same as two-one-hundredths of the quantity. For example, a two per cent solution means that there are two parts of a certain substance in one hundred parts of the solution, or in other words, two-one-hundredths of this solution is composed of this particular substance.

Then, if per cent is the number of hundredths, we may express it in the form of a decimal or common fraction—*e. g.*, one per cent may be written .01 or $\frac{1}{100}$; five per cent, .05 or $\frac{5}{100}$; ten per cent, .10 or $\frac{10}{100}$, and so on. The decimal form is generally employed in getting percentages, it being the shorter method. Let us get two per cent of one hundred grams both ways. Expressed in the form of a common fraction the process is simply the multiplying of a whole number by a fraction, and this is done by multiplying the whole number by the numerator and dividing the product by the denominator; thus: $100 \times 2 = 200$, and $200 \div 100 = 2$; the number of grams in a hundred to represent two per cent. Expressed decimally, it is the multiplying of a whole number by a decimal fraction. The rule is: multiply as in whole numbers, pointing off as many decimal places in the product as there are decimal places in the multiplicand and multiplier—*e. g.*, $100 \times .02 = 2.00$; the number of grams in a hundred to represent two per cent. Always bear in mind the decimal point in getting percentages. Two per cent cannot be written thus: .2; this would be two-tenths or twenty-one-hundredths, which is twenty per cent and is expressed decimally thus: .20.

Now if we all used the metric (the only proper and scientific system) it would be simply a case of multiplication in making any per cent of an aqueous solution of a solid, because the unit of dry and liquid measure corresponds—*i. e.*, one cubic centimeter of pure water at its greatest density weighs one gram. For example, to make 30 cc. of a five per cent solution of cocain hydrochlorate we proceed thus: $30 \times .05 = 1.50$, one and fifty hundredths, or one and one-half grams, being the amount of cocain hydrochlorate to use.

But when we use the apothecaries' weight and measure we find that the unit of weight (the grain) and the unit of measure (the

minim) do not correspond—*i. e.*, one minim of water at its greatest density does not weigh just one grain, but a little less. One fluid-ounce of water contains 480 minims, but this will not weigh one troy ounce, or 480 grains, but 455.6 grains. Then it necessarily follows that if we weigh one substance and measure the other, we must convert the measured substance into weight before figuring the percentage. For example, to make a fluid ounce of three per cent cocain hydrochlorate we would take the equivalent of a fluid ounce in grains, which is 455.6, and multiply by three, thus: $455.6 \times .03 = 13.668$, the amount of cocain hydrochlorate to use—practically thirteen and one-half grains. If you wish to make only one dram of the solution, get one-eighth of 455.6 or 56.95, practically fifty-seven grains; multiply this by three, thus: $57 \times .03 = 1.71$, practically one and three-quarter grains. To get a three and one-half per cent proceed the same, $57 \times .35 = 1.995$, practically two grains.

It is customary in making ordinary aqueous solutions to measure the liquids and weigh the solids, but we could weigh both and then there would be no converting—*e. g.*, to make one troy ounce of three per cent solution proceed thus: $480 \times .03 = 14.40$. Take 14.40 grains and add water to one troy ounce (480 grains), and we have a three per cent solution, as in the previous example, but the finished product is not the same. In this case we have made a little more than a fluid ounce.

If we were using a two per cent solution of cocain hydrochlorate for injection in tooth-extraction and our syringe held one-half dram (30 minims), to find the amount of cocain hydrochlorate in each syringeful we would take the equivalent of thirty minims in grains, or 28.5, and multiply by 0.2, thus: $28.5 \times .02 = .570$, five hundred and seventy thousandths or fifty-seven hundredths, practically one-half grain.

Dentists should be able to reduce from a higher to a lower per cent, especially now that formaldehyd is being used quite extensively. Formaldehyd is found commercially in a thirty-five to forty per cent aqueous solution. This is too strong for ordinary use. If our solution is forty per cent strength it is a simple matter to reduce it one-half with water and get a twenty per cent solution; double this quantity again with water and get a ten per cent solution and so on. But if your solution is thirty-five per cent and

you wish to reduce it to a three and one-half per cent, for example, the process by the above method would not be so easy. There are several rules for reducing from a higher to a lower per cent, but the following is probably as simple as any. It is stated in proportion, according to the rule of three, thus: The per cent of the stronger is to the per cent of the weaker as the quantity of weaker desired is to quantity of stronger required to produce it.

Now to make a fluid ounce of three and one half per cent formaldehyd from a thirty-five per cent we would state it thus: $35 : 3.5 : 480 : X$. To find X , or the unknown quantity, we multiply the second and third terms and divide the product by the first term, thus: $480 \times 3.5 = 1680.0$, and $1680.0 \div 3.5 = 48$. Forty-eight minims, the amount of the thirty-five per cent solution to use in an ounce of water to make a three and one-half per cent solution. We convert the ounce into minims in the proportion, so as to get the product or unknown quantity in minims, instead of in a fraction of an ounce. Another: to make sixteen fluid ounces of a seven per cent solution from a thirty-five per cent— $35 : 7 :: 16 : X$ — $16 \times 7 = 112$, and $112 \div 35 = 3.2$, three and two-tenths ounces, the amount of the strong to use.

Every dentist should have a knowledge of at least these two forms of percentage, and be able to figure them out and make the solutions without his apothecary.—*Cosmos, July, 1900.*

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INVITING SLEEP WITHOUT DRUGS. By Dr. J. B. Learned, Northampton, Mass. Read before N. Y. Institute of Stomatology, March 6, 1900. In 1880 a severe injury to the brain and nervous system came to me, and for many years following it seemed necessary for me to learn how to go to sleep. I had become convinced that the effects of hypnotic drug-taking were more damaging than sleeplessness left to itself. After many years' experimenting I became convinced that we could command the conditions, so to speak, in bed as readily as can the soldier and the huntsman prepare an appetite for a dinner. When I used the muscles sufficiently through the day, sleep came readily on retiring; but this was not always the case, and on going to bed I found I was not sufficiently prepared by being "all-round" tired. When I needed muscular exercise, and ran a wood-saw long enough I could readily go to sleep. Gymnastics in the bath-room, with hot and

cold water adjuncts, served a good purpose also. A walk of two or three miles had the same effect. I then felt tired and was ready for sleep.

This mode of preparation, however, has some unattractive features. Dressing and undressing in the middle of the night is one of them. It occurred to me under these circumstances that muscular effort might be employed while in an ordinary recumbent position in the bed. I had found sometimes that the tired sense experienced while engaged in wood-sawing or walking disappeared when I was again in bed, and the sleepless condition reappeared.

What are the obstructions in the way of sleep when we fail to reach it promptly on retiring? I have no time to talk upon remote causes. Omit civilization, tea, coffee, tobacco, the modern cookbook, and the drug habit, all potent factors in preparing the foundations for insomnia. I am to deal with the one obstacle which the brain-worker has to meet immediately on retiring, or at three or four o'clock in the morning, viz., automatic thinking. The brain is a great workshop, with machines, shafts, pulleys and belts; its work is thinking; the power is fresh arterial blood. The immediate obstacle to sleep seems to be automatic thinking. Power being furnished, some belt is on and one of the many nerve-centers persists in operating after hours. Now, since the machine always stops when the power is shut off securely, if we turn off the belt the thinking would stop and sleep come.

Let me outline a few of the simple motionless and invisible exercises that serve generally a very good purpose. Let us take the respiration in hand. Ordinarily the number of inspirations and expirations are twelve or fifteen. Reduce this number to four or six, making each inspiration full, regular, deep, prolonged; and let the expirations be carried on in the same manner. Thus the will-power is employed, and the muscles and respirations are called upon to an unusual extent. A part of the power that was used in the brain to carry on automatic thinking has now been turned into new channels. Keep this new mode of respiration under control, after the manner just described, for a few minutes, and the chances are that an equilibrium has already been established in the circulation, and that the automatic process in the brain has been checked. As soon as this is done sleep comes.

Take another exercise: Immediately upon going to bed measure

your length by reaching for the footboard and the headboard at the same time. In doing this you are exercising a large number of the trunk muscles and the muscles of the extremities. Hold this position for a length of time, until a sense of fatigue comes to the muscles engaged, and sleep may follow. Both these exercises may be carried on at the same time.

Here is another: Remove the pillow for the time being. Lift the head a half-inch from its resting-place; hold it there, lying upon the back, until the muscles become weary; it will take but a very short time. Drop the head now, retaining the same position in bed, and raise the right foot a half-inch from its resting-place. You have now to hold the weight of the clothes and of the foot. The sense of fatigue soon comes to these muscles. Drop this foot and elevate the other in like manner. Hold for the same length of time, until the sense of fatigue is here manifested. Return the foot to its place. If you keep the regularity of respirations during these exercises of head and foot elevation under the constant watchfulness of the will, you have drawn upon the reservoir of power by calling blood to other muscles used, and you have relieved the parts of the brain having an oversupply, which caused the automatic activity.

Still another group of muscles may be brought into use by turning upon the side, lifting the head by the use now of a new set of muscles, hold until, as before, your sensation says "enough," then let the head go down. Remaining on the same side, lift the limb enough to sense the weight of the clothes as before, and hold until the call comes to go down, which you will obey without prolonged exertion. Turn now onto the opposite side, lift the head as before, use the opposite set of muscles, remaining for the same length of time to change as before the limb that is now uppermost. Hold still again the limb with its covering as before until fatigue warns you to drop it.

Still another exercise, which may be engaged in with the same quiet and almost invisible results: Extend your arms by your sides, as though you would reach for the same footboard as before; contract every muscle in the arms; hold as before until the sense of fatigue warns you to change. Every muscle that has been used in these exercises has required the same power that has been in use without our consent or permission to carry on the automatic thinking of the brain. Bringing into use thus the muscles of all parts of

the body, we have called power away from the oversupplied brain. Our method might be termed that of counterirritation. These exercises act as mustard-plasters to draw blood to one part and relieve overdistention in another part.

Now it must be borne in mind that this mode of walking, sawing wood, taking hot and cold baths, going through a variety of gymnastic exercises at the open window, has been duplicated by the exercises we have gone through with in bed without dressing or undressing. Let us remember also that the one aim has been to take away power from that part of the brain whose juvenile pranks have disturbed us for so many nights and to transfer it to other parts. In other words, we have been turning off belts from one shaft and turning on belts to other shafts in this great machine shop.

If the exercises that I have outlined be moderate, no addition has been made to the heart-beats. If persisted in with much exertion the heart beat will be accelerated as it would be by running instead of walking; as it would be by sawing a half-cord of wood in an hour instead of in two hours. Each individual is a law to himself here as elsewhere. The exercises which will fit one case do not so readily fit another, and the amount of exertion which one person can make and endure might be altogether too much for another. So the very moderate efforts which I have outlined, always stopping at the first sensation of fatigue, might be entirely insufficient for some people. The robust, stalwart, vigorous brain-worker, who has allowed his muscles during the day to lie dormant, may well undergo more severe trial than the more slender, more nervous, and more broken man of mature years. Here let me say the condition of the heart, the condition of the lungs, the condition of the nerve-centers, of the digestive organs, and of the general nutrition are all factors in determining just what is best for each individual, not only in his day's work, but in the exercises which I have just outlined to you. Do not overdo it. Heart failure appears as the cause of sudden exit in too many cases.—*International, July, 1900.*

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UNUSUAL CASE OF CARIES. By Frank L. Platt, D.D.S. Read before San Francisco Dental Association, May 14, 1900. The case should properly be called caries of a portion of the superior maxilla. In August, 1896, the patient, a young married woman, apparently in good health and with no history of hereditary stru-

mous conditions, called at the office suffering from an alveolar abscess with fistulous opening at the apex of the root of the upper right lateral incisor. The crown of the tooth had been destroyed by caries and broken off, and the root was so diseased as to preclude any attempt at restoration to usefulness by treatment and crowning.

The root was extracted, the alveolus syringed with a warm carbolic acid solution, and healing followed the operation in the usual time without any manifestation of trouble. In the course of eight or ten weeks a small bridge consisting of an open-faced cuspid crown with a lateral incisor soldered to it was placed in position. For several months there was no evidence of trouble, excepting that the patient said occasionally the gum over the lateral seemed to be somewhat inflamed and painful. On one of these occasions, thinking the lateral might be pressing too firmly on the gum, the bridge was removed, the tooth shortened a little by grinding off a portion of its upper end where it rested on the gum, and the bridge replaced.

For about three years there was no further manifestation of trouble. The patient then complained of pain and discomfort in the right side of the upper maxilla, but was unable to definitely fix its location. An examination showed that the pulp of the second bicuspid was dead and putrescent (the first bicuspid had been removed to make room for the cuspid at the time of its eruption), but treatment of this tooth failing to give the desired relief, the bridge was again removed, as patient said the pain seemed to be located where the lateral had been extracted.

There was no evidence of any abscessed condition for several days, when the patient appeared one morning with the gum somewhat swollen, showing an abscess about to point where the fistula had been before the extraction of the lateral. On opening the abscess a small amount of pus was discharged, and an exploration with a probe revealed a cavity over an inch in depth, extending inward over the hard palate and back behind the cuspid, apparently to the anterior wall of the maxillary sinus. The fistulous opening was enlarged with a 3-16 inch round bur, and the cavity curetted as well as possible through this opening.

Treatment with hydrogen dioxid and a 5 per cent solution of protargol gave immediate relief, but the presence of carious bone being detected by means of a probe, a further operation was deemed necessary. The patient was placed under ether, and the second

bicuspid removed. This disclosed the fact that the carious cavity was quite extensive, and the cuspid being held in place by only the outer alveolar plate, it was extracted. The cavity was then thoroughly curetted with a sharp spoon curet, and all portions of carious bone were removed by use of a large, sharp bur. During the operation too profuse hemorrhage was prevented, and all hemorrhage kept under control by a solution of the extract of suprarenal capsules, 20 grs. to the oz., applied on tampons of absorbent cotton. The margins of the opening were carefully trimmed and the edges of the alveolar process smoothed as much as possible by the use of the bur and bone-cutting forceps. The cavity was then thoroughly washed with a hot 5 per cent solution of protargol and packed with moist iodoform gauze. This treatment has been continued daily (excepting Sundays) for the past four weeks, and the wound is now healing very rapidly. On two or three occasions a treatment with hydrogen dioxide has been demanded to remove slight traces of pus.

The interior surface of the cavity was covered with healthy granulations within ten days, and it is now filling up as rapidly as could be expected. To prevent the lip from being drawn down out of position by adhesions during the healing process, and to improve the appearance of the patient, a plate was put in position the third day after the operation, having a flange extending high up under the lip. Later this will be replaced with a removable porcelain bridge or partial continuous gum denture.

The points to which particular attention is directed are the length of time when there was almost entire freedom from annoyance, a period of nearly three years; the fact that the gum healed completely after the lateral was extracted and presented no fistulous opening whatever, nor was any discharge of pus present, and also the use of protargol as an antiseptic of great value in treating similar cases where caries of the bone is one of the leading factors.—*Pacific Gazette, June, 1900.*

HYGIENE OF THE EYES.—A famous oculist once gave this advice: "Use much cold water in washing the eyes. It is a tonic to them. One's sight begins to fail as the eyeball begins to flatten, so when you bathe the eyes, gently squeeze them from side to side—the forefinger at the side of the nose, the thumb at opposite side of the eye—and thus the convexity will be preserved. When the eyes are weary give them rest, and if they smart bathe them with a weak salt water, allowing it to go inside the lids."—*Health.*

Letters.

BALTIMORE LETTER.

BALTIMORE, MD., Aug. 17, 1900.

Dear Digest: Whe-ew! Never touched me. But my, what a jar. Have you heard how unhealthy it is for birds in these dig-gins? How the Honorable Secretary of State, Mr. Hay, having had his rest disturbed by their chirpings has employed a special policeman, backed by the authority of the government of this Grand and Glorious, and at present writing almost undefinable, United States, to keep the birds from making so much noise? I presume the Honorable Secretary derived his inspiration from the following lines of Eugene Field:

"There once was a bird that lived up in a tree,
And all he could whistle was Fiddle-de-dee;
A very provoking, unmusical song
For one to be whistling the summer day long.
Yet always contented and busy was he
With the vocal recurrence of Fiddle-de-dee.
Hard by lived a brave little soldier of four,
That weird iteration repented him sore.
I prithee, dear mother mine, fetch me my gun,
For by our Saint Diddy the deed must be done,
I shall presently rid all creation and me
Of that ominous bird and his Fiddle-de-dee."

With all this inspiration, with all this authority, high dignitary and pneumatic-gun-armed policeman coming my way, you certainly could not expect me to utter a note. Here I am at it again, however, as chipper as before, and how? Why, I just "fixed" the policeman, and now I can keep open all day Sunday if I desire. One condition only—I must not attack his honor, the Secretary, nor the government of the Grand and Glorious. The former's recent flirtation with the almond-eyed damsel of the east has evidently afflicted his nerves, made him more sensitive. The fact is, Oriole is not disposed to attack anybody or anything. It is too stinging hot for attack unless a fellow had the sharpened bill, the malaria bag, and the ubiquity of the Jersey mosquito. Oriole prefers leafy bowers and shady nooks with the chance to plan a fall and winter campaign.

Well, the summer meeting is over, and comments indicate that no records were broken; the wheels of professional organization and effort simply revolved with commendable regularity and energy; no spurts; no brass band flourishes; no upsets or runaways. The distance was simply traversed in a comparatively uneventful manner. And why not? Healthy growth and development are invariably regular and even. The novelist and romancer would lose his job if the historian could describe truthfully nothing but thrilling moments. One thing we congratulate ourselves upon (no mean record), good feeling prevailed during the entire meeting. I scarcely recall an occasion when so many disagreements were adjusted and so much bitterness buried—not all lime-juice either, but rancor and hatred which have distressed and divided friends and followers on all sides. Let us give thanks for this getting together of our friends.

In one particular the meeting was a failure, the good feeling referred to did not extend to the stomach. Never do I remember to have seen so much distress on account of physical disability. Intestinal infection was almost universal. Everywhere in the secluded corridors one was liable to find in the person of a friend a woe-begone picture of suffering and sadness. It recalled to mind what met the eye of a traveler in the days of early western emigration, who came across a dilapidated wagon upon the pole of which sat a solemn and solitary urchin. In response to the inquiry, "What's the matter," he replied: "Wall, mam died last night, baby brother's got dia'ree, pap's gone to hunt for water, and I'm powerful lonesome."

One might think that when a crowd gets too big to suit the convenience of cooks at hotels they just thin out the eaters at will. Oriole visited the kitchens to see if he could form any idea of how it was done. Arriving there he found a temperature of about 150 degrees, and over cans and cauldrons of cooking food stood immense negroes doing the dipping act, with perspiration running from them in streams. This was Friday. Two soft boiled eggs was the total of my orders from then until Sunday night. Of course what made the crowd sick is "another story." I record this only by way of apology or explanation to the head cook for so persistently ordering soft boiled eggs. The order is off.

Why would it not be a good idea to have our own cooks and pro-

viders at each meeting? When the National comes South again let it meet at Baltimore, and Oriole will charter a steamboat for a three days' cruise on the Chesapeake and its tributaries. I'll bet we could have a corking (and uncorking) meeting that way. The best of food could be obtained, the weather would be delightfully cool, and best of all, the audience could not escape. But, Mr. Editor, I did not intend to talk shop in this letter. The weightier matters will come in at a later date. I hope the western contingent reached home safely. Cordially, ORIOLE.

NEW YORK LETTER.

NEW YORK, Aug. 25, 1900.

To the Editor of The Digest,

MR. EDITOR:—We are struck with the large number of obituary notices that come to us each month. Too many dentists die young, and not necessarily because they are good. If the old adage were true your correspondent must not be among the blest, for we have passed our sixty-ninth birthday. An English writer once said that we "would die of Riggs' disease," but we trust not.

Dr. B. J. Perry died suddenly this month, leaving a good practice. He has been well known in New York for the past twenty-five years. He was a native of Worcester, Mass., and studied his calling there before coming to this city.

From the daily papers we see that the "Plastic Material Metal Covering Co." has been incorporated in Jersey City at \$1,000,000, and thereby hangs a tale. It seems that moneyed men are to compose a company now being formed, whose object is not only to make dental supplies but also to enter into the actual practice of dentistry throughout the world. The plan is to establish offices in all large centers and to employ available dentists under salary, each office of course to have a financial manager. It means going into the practice of dentistry as a business and on a business basis. It is rumored that Astor Court in the rear of the world-famed Waldorf-Astoria Hotel is aimed at for a starting point. We have often thought that if dentistry could be practiced by a syndicate it would be. The financial standing of the incorporators of this enterprise insures a higher grade of management than that of the ordinary painless dental parlors.

We do not see that anything can be done by the professional body

against these innovations. We have watched closely all these deviations from professional lines, and fully believe that the public has its own opinion, and that nothing which can be said or done will deter a certain class from patronizing advertisers. Some very intelligent people sometimes go astray, but they generally come back better suited with the regular practitioner than before.

Through a patient just now in our hands we learn that Dr. Geo. Phelps of Columbus, Ga., is critically ill with paralysis. He formerly operated for this patient, and she has many excellent fillings to show for it. They were made twenty years ago with sponge gold.

In conversation recently with Dr. St. George Elliott, the question of office rents came up. For many years back parlors could be rented for \$50 per month, and the front ones used for reception rooms. This, too, in good localities. Now the dentist must pay \$75 to \$100, without a reception room. The large office buildings which are coming more and more into favor here will probably soon get many dental tenants, as is the case in Chicago especially, where five or six hundred men have offices within a radius of one-half mile.

From all accounts it appears that a much smaller number of men went to Paris than was expected. We hope the Dental Congress will be more of a success than the Exposition itself has proved.

We see by a Maine fishing paper that our Dr. S. G. Perry is at Kennebago Lake catching trout by the hundred. The Doctor suffers yearly with hay fever, and as it does not prosper in that region he has doubtless gone there to escape it. We envy him—not the hay fever, but the fishing.

We understand that the recent meeting of the New Jersey State Dental Society was a great success, as usual. We do not think that Jersey men are any smarter than those in other states, but they certainly have more push and enterprise. Although the number of practitioners in the state is not nearly so large as in many others, all the society meetings are interesting and valuable and far above the average. With so many energetic men there are bound to be differences of opinion, but in the main we do not see that they have any more difficulties than other similar organizations. One surprise of the last meeting was Dr. J. N. Crouse's presence. He was in the East at the time on Protective Association matters, and learned

that rumors had been circulated to the effect that he was afraid to attend the New Jersey meeting, so of course he went. What happened is well described by the New York correspondent of the *Dental Review*, whom we quote:

"Next came a surprise—yet it was what one might have anticipated from Dr. J. N. Crouse. He had asked for the privilege of the floor and was promised a few minutes at the close of the morning session. He was there when the session opened and sat patiently until just before adjournment, when in a very nice way he opened his subject about Dental Protective litigations, and suits against Association members in various states, etc., gradually leading up to the action of the half dozen or so prominent Jersey dentists who settled with the Crown Company so hastily for nominal sums. He said he had called them traitors, but stood ready to apologize if it could be shown that he was in the wrong; but if he was not, he expected the guilty ones to apologize, not to him, but to the profession at large. When he had concluded a silence fell upon the multitude such as rarely occurs. They awaited the apology, 'which never came'—openly. ALMOST every man who paid the small fee of varying amounts got on his feet with an excuse, and ended by saying that if he could have known what he now knew, he never would have paid the Tooth Crown Company for his release. Dr. Osmun defended his position well, and it was most tenable. He had been sued by the Crown Company years ago, before the organization of the Dental Protective Association, and they had recovered from him. He had telegraphed Dr. Crouse this time asking what to do, and he also consulted his lawyer. Dr. Crouse being undecided what best to do in his case, and his lawyer urging him to settle, he did so, but if he had known —, etc., he would not have done so. Dr. Stockton, who was first to speak, pleaded the necessity for maintaining his credit in the business world as his excuse, saying that at the time he was so financially embarrassed that he was obliged to settle, and he could not afford to let it be known he was sued. Dr. Sanger had the floor, and showed fair cause for his action, showing that that Dr. Crouse had approved of his course, and also said that checks from some of his colleagues were shown him. Drs. Meeker and Riley made very poor showings; they were sorry, etc., etc. Dr. Holbrook was defiant. He had no excuse to offer and did not see that any apology was due. It is said that the agent for the Tooth Crown Co. is a particular friend of one of these gentlemen who procured the agent the position with the Crown Co. (?) and who introduced him to the members of the Jersey society.

"However all this may be, with the ending of the last explanation to Dr. Crouse the morning session of the society ended. Dr. Crouse evidently found nothing to apologize for, but had accomplished what he was after. He had bearded the lion in his den and

came away rejoicing. Counsel for the Protective Association—Mr. Offield—was present, but had nothing to say in open meeting. Evidently Dr. Crouse quite plumes himself on the outcome of the meeting, but it is not quite so certain that everything is his way, despite a resolution of confidence in him which was duly passed. A large number of dentists in New Jersey have been sued and their cases are in the hands of the Association lawyer. Recent developments as concerns Dr. Stockton, his having been compelled to go into bankruptcy within the last two weeks, bear out his contention. It seemed to us at the time that Dr. Crouse owed an apology to Dr. Stockton rather than the reverse. It was not a pleasant thing to feel that such a one as Dr. Stockton should be compelled to lay bare his business troubles to shield his course in a matter in which his long, honorable career should have been a sufficient answer. Apparently the Jersey men were 'lame.' They had been 'kicked' some time ago, and were now willing to be 'kicked some more.'

"If we remember correctly, it was intimated in Dr. Crouse's first article, in which these Jersey men were called 'traitors,' etc., that all these checks 'had strings to them.' It was not in evidence at this meeting that *any* of them had strings, though there were hints of a 'game of poker' and sundry 'I have heard so's' and 'it is reported.' But no one doubts that Drs. Stockton, Osmun and others did *actually* pay, and have *not* had the money or its equivalent returned.

"It was most surprising to observe the quiet 'Methodist-class-meeting' air that pervaded the audience. How meekly each 'brother' related his experience, *most* (not all) ending with 'had I known what I know now I would not have done as I did.' 'After the horse was stolen,' etc. Altogether it was 'washing dirty linen,' which seems to have been the fate of the New Jersey State Dental Society for the last few years."

It has been terrifically hot in New York, so that we do not wonder at the large number of absentees. Other cities, however, have not been spared, so we cannot complain. Cordially,

NEW YORK.

PEROXID OF HYDROGEN AS A LOCAL ANESTHETIC.—I have not seen anywhere peroxid of hydrogen spoken of as a local anesthetic, and as it has proved very satisfactory in my hands I venture to mention it. Injected under the epidermis it produces immediate and complete anesthesia of the whole skin. I have used it for over a year in opening abscesses, cutting off redundant tissue in ingrowing toe-nails, opening the pleural cavity, and in one case the abdominal cavity. I do not think any absorption takes place, as the intercellular inflation from the gas generated seems to produce such pressure that the skin cuts like frozen tissue.—H. E. Kendall, M.D., in *Med. Record*.

The Dental Digest.

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At 2231 Prairie Avenue, Chicago,

Where All Communications Should be Addressed.

Editorial.

MASSACHUSETTS CASES DISMISSED.

It will be remembered that on Sept. 30, 1899, eight dentists of Boston were sued by the International Tooth Crown Co. for sums varying from \$5,000 to \$7,000. Their real estate was attached, and marshals were placed in their offices. These men were Edward M. Currier, John F. Dowsley, Thos. Fillebrown, A. H. Gilson, F. M. Hemenway, H. D. Osgood & Son, L. D. Shepard. They telegraphed the facts to the Protective Association, and that organization at once furnished a bond of \$45,000 and secured release of the attachments and removal of the marshals. The Association's attorney, Mr. Offield, immediately left for Boston and took charge of the cases. Since then we have been endeavoring to force the Crown Co. to bring these cases to trial. That corporation attempted to secure an order from the Court of Appeals in Massachusetts, compelling the members sued to bring their books into court and have an examination of them before a master, but the Court refused that order and pronounced the procedure illegal. We now learn that the Court has dismissed all these suits because the Crown Co. refused to stand for trial when the Association was ready and also failed to produce a bond for costs.

While the danger to these particular men is practically past, we are pleased to state that the Crown Co. is still liable for damages because of the annoyance to which these dentists were subjected by having marshals in their offices for a few days.

The fight is by no means over, as there are other suits pending, and we do not doubt that the Crown Co. will push cases in the east and especially in and around New York, as that is the district wherein they obtained their favorable decision last year. Since, however, the Protective Association has been able thus far to checkmate every move of the Crown Co., we believe it deserves the credit of preventing the abuse and hardship which would otherwise have

fallen on members of the dental profession had not such an organization been ready to assume the defense of all cases.

As regards the New Jersey suits, we stated last month that the Crown Co. were trying to compel the dentists sued to bring their books into court and have an examination of them before a master in chancery. The Association's attorney fought this move and refused to have his clients appear in court. The attorneys of the Crown Co. failed to obtain a contrary order, and as court is not in session the matter must lie over until October.

FOREIGN RELATIONS COMMITTEE REPORT.

We have just received the report of the Foreign Relations Committee of the National Association of Dental Faculties, which we publish elsewhere in this issue. A reading of same will show the great work which the Association is doing through this one committee alone. We are not in possession of the proceedings of the last annual meeting of the Faculties at Old Point Comfort, and so can not discuss the entire work, but we believe most of the improvements and advances made in our educational system are largely due to this organization, so that it is one of the most important factors connected with the dental profession.

The report in question discusses at length the problem of bogus diplomas issued by chartered institutions which make a business of selling same. While such fraudulent colleges do to some extent bring discredit upon the work of legitimate schools, it can be only brief in its effect. Especially will this be true when the work of the Faculties' Association is more universally recognized and better understood. This can be brought about by this same Foreign Relations Committee if it keeps up the labor so well begun.

So long as we can remember this selling of bogus diplomas has been carried on, and it has had but little effect in this country, for the American public is not fooled very much by either a bad or good diploma, if the holder is incompetent to render good dental services. The very fact that anyone is willing to give money for a bogus diploma is proof positive that he is dishonest and therefore unfit for the responsibilities of a practitioner. We believe it is what the individual can accomplish rather than the holding of a diploma that gives him influence. Furthermore, we believe that the dentists who have gone to Europe and made reputations did so because of their

superior skill and not on account of their holding a degree. It is not strange, however, that disreputable characters should endeavor to derive benefit from the reputation built up by these American dentists abroad, and in so doing bring discredit upon all our practitioners in foreign lands.

It will of course not be understood that we are arguing against diplomas, for we heartily believe in legitimate ones and in good college training. This committee of the Faculties' Association can accomplish a great work by familiarizing the people of Europe with the objects and aims of the Association and by showing what thorough work is being done in the schools of that organization. If this committee continues as well as it has begun there is no reason why the unification of requirements and laws can not be brought about, so that a diploma from one of our recognized schools will entitle the holder to practice in any country. This object will be attained when the different states of this country can agree upon a unification of the dental laws. Whether or not this work lies within the scope of the Faculties' Association or the State Boards of Dental Examiners, we believe that by working together they can attain this greatly desired result.

THE BLAME PLACED IN NEW JERSEY.

On page 609 of this issue will be found a very fair report of what transpired during the talk on the Protective Association at the recent meeting of the New Jersey State Dental Society. We must, however, differ with the correspondent on one or two points—"It is quite certain that everything is our way." The fact that members of the Protective Association in New Jersey have been sued binds them still closer to the organization. Their cases are being carefully watched, and there is no doubt that the ultimate outcome of the suits will be in the defendants' favor. Despite the fact that we severely censured some of the most prominent practitioners in New Jersey last fall for their action in settling with the Crown Co., which criticism might have alienated them and their many friends, we were never more cordially received, or the cause of the Association more warmly upheld than at the recent meeting. We have no hesitation in saying that at the present time we have the absolute confidence of almost the entire profession in the state.

We have been criticised for our severe arraignment in the Decem-

ber, 1899, DIGEST of the dentists who compromised with the Crown Co. to avoid suit. We stated at that time that they were in collusion with our enemies and that their action was intended only to shake confidence in the Association. It is a sufficient justification of our course that the dentists who settled, excepting the notorious Holbrook, have since publicly explained the circumstances under which they were constrained to this action. If they had been in possession of all the facts, especially one which we are about to divulge, they would never have made terms with the Crown Co. While we do not feel that any apology is due them from us, we regret in the light of recent developments our severe language used last December concerning those dentists who paid money to the enemies of the profession under duress or a misunderstanding of the facts. Their action fortunately has not produced any important results. The Crown Co.'s object in forcing these particular settlements was to establish a precedent. This object was not attained, as no more members have paid tribute since that time, and the minions of the Crown Co. have not succeeded in hoodwinking the dentists of New Jersey or any other state.

It was evident at the time of the unfortunate occurrence last December that C. W. F. Holbrook of Newark, N. J., was the real traitor, as it was understood that he was an intimate friend of the Crown Co.'s attorney, and that he procured him his position with that corporation. Furthermore, that he was instrumental in inducing the other dentists to compromise. The attack on the Protective Association and its management which he made in April, and which was printed in two or three dental journals, also showed on which side he stood.

It was possible only recently for us to obtain the court records in the case of the Crown Co. vs. James Orr Kyle, in which the latter was a relative of one of the Crown Co.'s officers, and part at least of the expense of whose defense was met by that organization. This is the case where the Protective Association was not represented, and which the Crown Co. won on July 31, 1899, through queer methods. The aforesaid record shows that C. W. F. Holbrook *voluntarily* went to New York and gave elaborate testimony in the interests of the Crown Co. We know he did this voluntarily because the Crown Co. could not have compelled him to leave his own state and go to New York to testify. We do not know whether or

not this Holbrook has any pecuniary interest in the Crown Co., but his actions certainly lay him open to that suspicion. At any rate our charges that he is interested in and working for the Crown Co. are sustained. If such proof as we have offered does not convince those who upheld and defended this tool of the Crown Co. we do not know what will.

Notices.

FIRST DISTRICT DENTAL SOCIETY OF ILLINOIS.

The eighteenth annual meeting of this body will be held at Galesburg, Sept. 25-26, 1900, and the profession are cordially invited to be present.

A. G. SMITH, Sec.

SOUTHERN CALIFORNIA DENTAL ASSOCIATION.

The third annual meeting of this society will be held at Santa Barbara, Cal., Oct. 8-9, 1900. The profession in the vicinity and state are cordially invited to be present.

L. E. FORD, Sec., Los Angeles.

MICHIGAN STATE BOARD OF DENTAL EXAMINERS.

The next meeting of this organization will be held at the Cadillac Hotel, Detroit, Oct. 9, at 9 a. m. Candidates should present themselves at the first session.

F. O. GILBERT, Sec., Bay City, Mich.

ILLINOIS STATE BOARD OF DENTAL EXAMINERS.

The next meeting of this board will be held in Chicago Oct. 5-6, 1900. Those desiring to take the examination should notify the secretary ten days before date of meeting.

J. H. SMYER, Sec., 70 State St., Chicago.

NEW JERSEY STATE DENTAL SOCIETY.

At the thirtieth annual meeting of this society, July 18-20, 1900, the following officers were elected for the ensuing year: Pres., F. Edsall Riley; V. P., W. L. Fish; Sec., C. A. Meeker; Asst. Sec., H. S. Sutphen; Treas., H. A. Hull; Ex. Com., H. S. Sutphen, O. Adelberg, F. L. Hindle, W. H. Pruden; Membership Com., C. M. Holden, W. W. Hawke, A. Irwin, J. L. Crater, W. Woolsey. Member State Examining Board, J. Allen Osmun.

NORTHEASTERN DENTAL ASSOCIATION.

The sixth annual meeting of this organization will be held at "Eloise," Providence, R. I., Oct. 16-18, 1900. The committee has secured the most desirable and commodious building for the meeting ever obtained for such a purpose, and strenuous efforts are being put forth to make this gathering in every way the best ever held in New England at least. The results thus far have been most gratifying, and prominent men of the profession have been

secured for papers and clinics. The exhibits will be large and so separated from the scientific portion of the meeting that neither will disturb the other. It is earnestly hoped that a large attendance will result.

EDGAR O. KINSMAN, Sec.

RESOLUTIONS ON DR. MENGES' DEATH BY INDIANA STATE BOARD OF DENTAL EXAMINERS.

WHEREAS, The late Dr. Theo. Menges, by untiring energy and devotion to the cause of dental education, has rendered inestimable services toward progressive dentistry and dental science; and,

WHEREAS, The dental profession of the world and dental educational institutions of the United States have suffered an irreparable loss by his untimely death, and the Northwestern University Dental School, its teachers, and numerous graduates the loss of a faithful friend and counselor; therefore, be it

Resolved, That this board express its sympathy to his bereaved wife, and its regrets to the Northwestern University Dental School and its teachers and its graduates for the loss sustained in the death of their Napoleon of dental education.

M. A. MASON, Sec'y.

REPORT OF THE FOREIGN RELATIONS COMMITTEE OF THE NA- TIONAL ASSOCIATION OF DENTAL FACULTIES.

[Reported and Adopted at Old Point Comfort, Va., July 14, 1900.]

During the past year the work of the Foreign Relations Committee has been materially extended. Advisory boards in most foreign countries have been provided for, and appointments made to fill them as fast as sufficiently definite information to enable the committee to do this properly could be obtained. Pamphlets containing an exposition of the work and the aims of the National Association of Dental Faculties have been printed and circulated in foreign countries, and a number of circulars of information for members of our foreign advisory boards have been printed and mailed to them.

It is unfortunately the fact that, because of the lack of uniformity in the educational systems of the different states, and the absence of any general supervisory authority on the part of the national government, under some unwise local legislation it has been possible for irresponsible, unqualified and unscrupulous men to secure charters for institutions empowered to grant degrees, and under such authority to issue, for a consideration, irregular and fraudulent diplomas. This traffic has principally been with men in foreign countries, who, primarily the guilty ones, have sought to obtain academic honors without the labor necessary to honestly acquire them. As these institutions have been conducted under pretentious names, it was formerly impossible for foreigners who had no intimate acquaintance with American educational affairs to distinguish between the regular and the irregular schools. The organization of this association has established a criterion by which they may be judged, only those owing allegiance to the National Association of Dental Faculties being recognized.

It is unfortunate that the professional situation in America has not in past years been better comprehended in Europe. All our schools have been held responsible for the vile work of the fraudulent ones—nominally located in this country, but chiefly supported by unprofessional men from abroad. There has even been a grave misapprehension of the objects of this association, and the work of the Foreign Relations Committee has in some instances

been totally misconstrued. All of us are aware that while some of the very best and ablest American representatives have located in foreign countries, and to whose professional career we can point with pride, it is unfortunately the case that some Americans of a different professional reputation have gone abroad and have indulged in practices as offensive to our foreign *confreres* as they are to reputable American practitioners. There are many more unworthy foreigners who have legitimately or illegitimately become possessed of an American degree, and who without warrant of right claim the title of "American dentist".

The belief is prevalent in certain foreign professional circles that it is the aim of the National Association and its Foreign Relations Committee to obtain for all such persons professional recognition, and to demand the acceptance of their American degree by the governments of foreign countries. It is but proper that we should in the most authoritative manner deny any aspirations of the kind. This association has not in the remotest manner contemplated any interference with or protest against the laws or regulations governing the practice of dentistry in any foreign country. It has not primarily been the object of either the National Association or its Foreign Relations Committee to attempt to secure for the American dental degree any legal recognition as a qualification for foreign practice. It is not usual in the American states which have legal professional regulations to receive the diplomas of any foreign professional school as a qualification for practice, and we cannot consistently ask that which we refuse to others.

It seems but proper that we should publicly avow the reasons that have prompted the better colleges to form this association of schools, and to appoint a committee charged with the duty of harmonizing our relations with the dental profession in other lands. We seek for the distinctive American dental diploma nothing more than the consideration which its merits demand. If its reputation has been debased by the circulation of counterfeit diplomas, it is something for which we are in no way responsible. In the formative educational period, when dental schools existed nowhere save in America, and when even dentistry itself was undefined, empirical, tentative, with no distinctive line of practice and no clearly prescribed curriculum of study, the newly adopted degree may have been conferred in some instances on insufficient acquirements. The experiment of establishing a special dental educational course of study, and thus laying the foundation for the broad profession which exists in all civilized countries to-day, was tried first in America and here tested for the whole world. There were no precedents for our guidance, and no earlier successes or failures to stand as landmarks. We were the absolute pioneers, and it would be little wonder if we made some errors.

Since that day other countries have drawn professional lines and marked out, each for itself, a distinctive course of procedure. Each of these varies somewhat from the others, and perhaps all from that originally established in America. If dentistry is to be accepted as a profession at all, or as a distinct branch of a great mother profession, it must be broader than is any state; it cannot be confined by any bourne nor limited by mountains, rivers or oceans. There should be no American, English, German or French dental profession, except as each is a part of one undivided whole. Realizing all this, the National Association of Dental Faculties was organized for, and has been constantly laboring to attain, these definite purposes: First. To establish a broad and generally accepted curriculum of dental study, and by the combination of all the better dental schools of America to bring each up to a uniform standard of excellence. Second. To establish a clear line of demarkation between the regular and the irregular schools, and to force out of existence the latter. Third. Gradually to raise the standard of preliminary education until none but such as has the general erudition that should distinguish a professional man can be accepted in American dental colleges.

These were the principal objects in view, and in the attainment of them success has been secured exceeding the most sanguine expectations of the founders of the movement.

In the development of its plans the association met with many obstacles, and found itself laboring under great embarrassments. One of the chief of these was the lack of information concerning professional affairs in foreign countries. The association decided, as far as was in its power, to cooperate with the worthy dentists of other countries in the laying down of certain broad principles which must be the foundation upon which any true professional practice could rest. Any international cooperation must be based upon a complete knowledge by each of the methods and aims of the others. There can be no concurrent effort without mutual comprehension and intelligence.

Another perplexity was found in the fact that in establishing the preliminary qualifications for matriculation in American colleges there was no rule by which to judge of the value of certificates presented by foreign students. After completing the course of some foreign school, a student, who perhaps spoke only a strange language, sometimes desired to conclude his studies by taking as much of the American course as would enable him to finish it, and he demanded of some American college advanced standing of one or more years. His certificates were in a foreign tongue, and in some instances were found either forged or not that which they were represented to be.

In this emergency, at the earnest request of certain American dentists practicing in foreign countries, who had been scandalized by the acceptance in America of students with improper certificates, a committee, to be called the "Committee on Foreign Relations," was appointed, and was charged with certain definite duties: First. It was to be in all things subordinate and subservient to the National Association of Dental Faculties, to which body it must make a full report each year. Second. It was empowered to appoint advisory boards of not more than three members in each foreign country having any professional relations with America, whose reports concerning foreign qualifications might form a basis for action in this country. Third. It was to have jurisdiction in all foreign educational questions affecting American dental colleges. Fourth. It was to obtain definite information concerning dental regulations and laws in foreign countries; to learn what were the curriculum and requirements of all foreign dental schools, with the view of determining what value should, under American laws and regulations, be given their certificates of study, either as a qualification for dental practice in America or for admission to advanced standing in American dental colleges. Fifth. It was charged with the duty of ferreting out institutions engaged in the granting of irregular degrees or degrees irregularly, and instituting measures for their suppression.

In compliance with the first enumerated duty your committee makes this report of what it has done during the past year, and appends the recommendations for future action which its experience leads it to believe advisable. It has earnestly striven to carry out what its members believed to be the wishes of this association, and it has had no policy of its own to inaugurate or attempt to enforce. It has in all things been governed by what it believed to be the spirit of its instructions.

Concerning the second business your committee begs to report that it has divided the various countries of both the Eastern and Western Hemispheres into convenient groups, and has appointed boards for each, so far as the information obtainable has warranted. In making such appointments it has deemed the following qualifications essential: First. The appointee should be a regular and reputable dentist, possessing the legal qualifications of the country which he represents. Second. He must be a graduate of some reputable American dental school, or possess an acquaintance with the curricula of American schools, and be familiar with American dental professional methods.

In the discharge of the third duty your committee has met with great embarrassments. At the very outset colleges, members of this association, appealed to us to know what consideration should be given to certificates showing that proposed students had taken the full course in schools located in Japan and Mexico, which purported to teach the whole dental curriculum. Your committee could not learn that any schools giving a course in dentistry that could be accepted as an equivalent for any part of that demanded by this association existed in either country. They therefore ruled that students from either could be accepted only as members of the freshman class of American dental colleges, and then only if they complied with the rules of the association so far as preliminary education and a knowledge of the English language are concerned. This ruling was cheerfully accepted by the schools that had raised the question, and we present it as an encouraging proof of the loyalty and anxious desire for a high standard that exists among the recognized dental colleges of America.

But the discussion of this raised the question of the consideration that should be given to the certificates of study from any foreign dental school. Our rules provide that no credit shall be given to certificates from any American dental school whose curriculum and regulations have not received the formal approval of this association. Could we, in the name of the National Association of Dental Faculties, approve the giving of advanced standing to students from the schools of other countries that had not the same stamp of regularity? That is, could we extend to foreign and unknown dental teaching institutions privileges that were positively forbidden to American schools? It took but a short time to arrive at the inevitable conclusion that we could not approve the giving of advanced standing to graduates or undergraduates of any foreign dental school whatever until such school had received the formal indorsement of this body.

In the discharge of the fourth duty your committee is in possession of a very voluminous mass of correspondence and reports, which it has earnestly labored to reduce to some system.

Under the fifth head a great deal has been accomplished. The same legal counsel employed last year has been retained, and the same general course has been pursued. It is probable that more fraudulent diplomas have been sold in foreign countries during the past year than ever before. This is due to the fact that those who have been carrying on the traffic realize that, because of activity in their prosecution, the time for accountability is near at hand, and they are striving to make the most of the present opportunity.

It is urged by foreigners that this business should be summarily stopped. Such people little know the difficulties in the way. In the first place the traffic is mostly with foreigners. As their illegitimate diplomas are wholly worthless in this country, no state board of examiners recognizing them in any way, those who are engaged in the business carefully cover their tracks, and no responsible man can be located. Attempts to entrap them by means of decoy letters have failed, some such having crossed the ocean a number of times without delivery, being forwarded from one of their foreign agents through whom the nefarious business is carried on to another, until finally returned to the writer by the postoffice authorities. Fictitious names are signed to the pretended diplomas, so that it has been found almost impossible to fix the guilt upon any person. Our friends in foreign countries have contented themselves with bitter reproaches against American colleges generally, without forwarding any testimony that would assist in the discovery of the guilty ones. The fraudulent institutions could not by foreigners be distinguished from the regular colleges, for they were in possession of charters regularly granted under a vicious law of the state of Illinois, whose entire repeal it had been found impossible to secure, because the interests of legitimate enterprises were inextricably bound up with the illegitimate ones.

Your committee early discovered that working alone it could accomplish

little. The Board of Health of the State of Illinois was taking the matter up, and possessed advantages for the prosecution of the lawbreakers which were not within our reach. We have therefore contented ourselves with co-operating with that board in every way possible, and our counsel has been instructed to offer them any assistance within our power. As a consequence we have great pleasure in reporting that, acting under the United States law, which forbids the use of the mails for fraudulent purposes, the worst of these offenders have finally been apprehended and committed to jail in default of the heavy bail that was demanded. What is of more importance, if possible, the United States mails are closed against the transmission of their correspondence, and letters to or from them are promptly sequestered.

The greatest offender was last year named in this report as "The Independent Medical College of Chicago." We secured the annulment of the charter of this affair, but in a very short time we found that the same men were yet engaged in the business under the name of "The Cosmopolitan Medical College." They had offered for sale no less than thirty-six different diplomas in all the branches of science and art, and since the forfeiture of the charter under which they first worked it is believed they have sold more than a thousand fraudulent diplomas, at prices varying from ten to five hundred dollars each. Proof sufficient to secure the cancellation of the first charter was obtained only through the inordinate cupidity of the man who was chiefly responsible. He paid a debt of some thirty dollars due to a stable man or hostler, by issuing a diploma to him and making him a professional man. The recipient, when he found himself under arrest for attempting practice under it, betrayed the swindler, and we were thus able to fix his guilt.

The late proceedings against this man and his associates have developed the fact that they were in possession of no less than *twenty four* different charters, all regularly issued under that mischievous Illinois law, which was enacted for beneficent purposes. We have now learned the methods of these men, and it is believed that it will soon be possible to put an entire stop to their villainous traffic, through the imprisonment under the United States postal laws of those engaged in it. Too much credit cannot be given the Board of Health of the State of Illinois for the active part it has taken in the suppression of these miserable pretenders that have so long been bringing discredit upon our legitimate and excellent educational institutions.

REPORT CONCERNING FOREIGN EQUIVALENTS.

It must not be forgotten that the system of dental instruction in Europe varies very widely from that of our special American dental schools. Instruction separate from that given in the medical schools or universities is very rare, and the practical training which forms a part of our curriculum is usually given by private preceptors. Your committee does not feel at liberty to recommend the acceptance of an oral and theoretical course as the equivalent for one including practical work. We cannot believe that the certificates of private and irresponsible practitioners can by us be accepted as any part of a college course, and hence we have given them little consideration. It is quite probable that in some instances we have recommended that one year's advanced standing be given the holders of some certificates when further knowledge might show that they should be admitted to our senior classes, but we have thought it wisdom to err upon the safer side.

Australia.—A very complete report from the various colonies of Australia and New Zealand has been made by the advisory board appointed for those countries. It would appear that in most of the colonies there is no dental legislation, but Victoria has lately secured a law analogous to that of England, and in Melbourne a dental school has been organized whose curriculum, from the partial syllabus furnished, seems to be a comparatively broad one. The dean of the "Australia College of Dentistry" is an American

graduate and appears to have the confidence of the dentists of Australia. Your committee is unable positively to determine whether the school in all respects comes up to our minimum requirements, but this it has directed its chairman definitely to ascertain, after which your committee will be prepared to recommend to this body some proper action. There has also been established in Melbourne, Province of Victoria, the "Dental College and Oral Hospital of Victoria," but your committee is not at the present time in possession of sufficiently definite information to enable it to offer any recommendation concerning it.

In the provinces of Western Australia and Tasmania no dental legislation has been secured.

There is a dental law in New Zealand, and the member of the advisory board from that province has furnished your committee with an abstract of it. There are no dental schools in the province.

Switzerland.—Full reports from this country have been furnished by Dr. Bryan. It is a republic analogous to our own country in some respects, the federal union being composed of separate cantons. There are some excellent universities which offer certain facilities for dental study, but their practical instruction, we believe, cannot be accepted as an equivalent for that offered by American dental colleges. Your committee recommends that holders of the Swiss national diploma be given one year's advanced standing in the schools of this association, but that no consideration be at present extended to holders of the cantonal qualifications.

Spain—Complete reports have been furnished by members of the advisory board. The Spanish requirements in medicine are very high, but your committee cannot learn that there are any dental schools, or dental departments of universities, whose course of instruction can be accepted as the full equivalent for the instruction given in American dental colleges.

France.—Your committee is aware that separate dental schools exist in France, and its chairman has been in daily expectation of receiving their curriculum of study, but up to this time has been disappointed. Without this exact knowledge the members do not feel themselves justified in recommending any action, for we cannot proceed in so grave a matter upon mere assertions or impressions. As members of your committee will visit France in the immediate future, and will carefully investigate the course of study, we ask that we be given authority to incorporate our recommendations in this report after such investigation shall have been completed.

Germany and Austria.—The dental schools of these countries are departments of the universities, and only university students attend them. The instruction consists of lectures and clinical work given by from one to three dental professors, who lecture upon the different dental subjects. Instruction in chemistry and allied studies is afforded in the School of Philosophy or Science; in anatomy, physiology, etc., in the School of Medicine. No special instruction is given dental students except by the very few dental teachers. The clinical instruction is largely devoted to extraction and oral surgery. The practical work is usually quite limited. There is no obligatory course, but students enter for such lectures as they may choose, paying the fees of each professor separately. There are no obligatory hours for study or lectures.

The mechanical instruction consists of lectures on the principles of mechanics, the practical work being usually done in private laboratories. The examinations have very little resemblance to ours, each teacher asking three questions out of a list of forty approved by government. They are not usually as exhaustive or comprehensive or scrutinizing as ours. The licensing or approving power rests with the "Kultus Ministerium," or department of religion and education. The great majority of dentists in practice are Zahntechnichers, mechanical dentists, upon whose work no restrictions are placed, as they are not recognized by the government.

Your committee recommends that students speaking the English language who have taken the full dental course in German or Austrian universities, be eligible for reception in the junior classes of American dental colleges, provided it be shown that they have had at least two semesters of competent college instruction in practical laboratory and operative work. It further recommends that students speaking the English language who have had at least four semesters of such instruction in operative and prosthetic practical courses, and who shall have finished the dental course in the University of Berlin, or in any German or Austrian dental school whose course of instruction offers a full equivalent, be eligible for admission to the senior classes of accepted American dental colleges.

Italy.—In Italy the practice of dentistry was long without special restriction. Then an attendance upon lectures in a medical school was required, and a dental diploma was issued. In 1892 a law was passed which required dentists to obtain a medical diploma. This was not enforced until 1898, when a movement against foreign practitioners was inaugurated. They appealed to the courts and carried the matter to the supreme court, which decided that those in practice previous to 1888 had rights which could not be abrogated. At present the law of 1892 is in force, and this requires a medical diploma for the practice of dentistry and phlebotomy.

There are, we believe, no schools in Italy which have courses that can be accepted as equivalent to those of our American dental schools. The instruction given in the medical schools your committee believes to be too exclusively general in its character to form an acceptable course in dentistry for American students.

Mexico.—There is a medical school in the City of Mexico which purports to give dental instruction. Your committee cannot learn that it is of such a character as will enable it to be accepted as the equivalent for a course in an American college.

Japan.—There is one dental school in Japan—that of Dr. Takayama, in Tokio. It confers no degree, but gives a certificate which entitles the holder to government examination, the same as if he had studied with some practicing dentist. As the instruction is personal and the school quite irresponsible, your committee believes that no consideration can be given to it.

Holland and Belgium.—In these countries the title of dentist is obtained by passing a practical examination in the theory and practice of dentistry. There are no separate dental schools, and we are not sufficiently informed of the comprehensiveness of the syllabi of the universities to offer any recommendations concerning them.

Great Britain.—There can be no questioning the fact that England has some excellent dental schools. The only embarrassing circumstance in the determination of their status relative to ours lies in the great difference between the educational systems of the two countries. Undoubtedly they place greater stress upon preliminary educational requirements than do we, but your committee is of the opinion that our practical instruction is superior. Originally, we believe, there was little instruction given in prosthetic work during the term of attendance upon hospital lectures. Students were supposed to come to the college for didactic instruction, the practical part having been previously communicated by a preceptor. It should be comprehended that English dentists frequently employ a mechanic, who is not required to possess any special educational qualifications, the registered dentist mainly confining his attention to the operations of the surgery or operating room.

In this country we believe the practical work of the laboratory should form a part of the college course, and we do not graduate a student until he shall have satisfactorily completed the whole curriculum within the college walls. We are under the impression that the English system is undergoing a change in this respect, and that practical, laboratory work will soon form

a part of the obligatory college course. We recommend that all students who shall have finished the complete course in any recognized English, Irish, or Scotch dental school or hospital shall be eligible for reception as senior students in American dental colleges upon proof of their having taken as a part of such course two years of instruction in a properly equipped dental laboratory and dental infirmary connected or affiliated with such dental school or hospital, and which requires the successful completion of the work deemed essential by recognized American schools, as formulated in the minimum requirements for foreign dental schools accompanying this report. We further recommend that for the present no consideration be given to partial courses in any of the dental schools of Great Britain.

Sweden.—Very complete reports have been furnished by Dr. Forburg. The country has one dental school, which is the dental department of the "Carolina Medico Chirurgical Institute of Stockholm." Instruction is given by five professors of the medical department, and there are three dental professors, occupying respectively the chairs of dental surgery, operative dentistry and dental prosthetics and orthodontia. From the assurances given by Dr. Forberg, your committee believes that its graduates should be permitted to enter the second-year class of recognized American dental colleges provided they shall have complied with our requirements concerning mechanical laboratory work. Your committee has not sufficient knowledge concerning this school to warrant further recommendations at present.

Canada.—In the Dominion of Canada there is but one school, which demands consideration, and that is a member of this body. Yet the educational systems of the two countries, especially in professional matters, are so different as to engender continual embarrassments, Canada being a foreign country, your committee has felt itself bound in duty to place it in the list of those countries whose relations with us must be taken into consideration. The dental educational system of Ontario approaches more nearly that of England than that of America. It has an analogous system of indentures which the dental student must sign, and private preceptorship forms a portion of its obligatory instruction.

This is directly at variance with our system, which accepts no tutorship by irresponsible parties. The dental law of Ontario forbids the entrance upon practice of any one who has not taken his final course of instruction in the Royal College of Dental Surgeons of Ontario. We believe that this principle is the correct one, and that the same rule should be made applicable in the United States, and that here, as there, no foreign qualification should be sufficient for registration in the various states of America. But the membership of this foreign school in our association presents an embarrassment which for the present seems insuperable, and your committee therefore has no recommendation to make, but leaves the matter for future consideration in the hope that some code of international agreement may be devised which will give to the graduates of America's recognized colleges who desire to practice in Canada the same privileges extended to the alumni of the excellent Ontario dental college.

REPORT CONCERNING THE MINIMUM REQUIREMENTS TO BE DEMANDED BY THE NATIONAL ASSOCIATION OF DENTAL FACULTIES FOR THE RECOGNITION OF FOREIGN DENTAL SCHOOLS WHOSE STUDENTS DESIRE ADVANCED STANDING IN THE COLLEGES BELONGING TO THE ASSOCIATION.

1. The college must require of matriculants a preliminary education which is the full equivalent of that demanded by the schools of this association.
2. The college must demand of students full attendance upon at least three full annual courses (not semesters) of lectures of not less than seven calendar months each, in separate years, covering all the studies proper to a full dental curriculum.
3. The college must possess a bacteriological laboratory, with sufficient of equipment for instruction in a competent course in bacteriology, which must form a part of its curriculum of study.
4. The same

must be required in chemistry, histology and pathology. 5. There must be a technic laboratory in which shall be taught the proper manipulations for the insertion of all kinds of fillings for teeth, the preparation and filling of the roots of teeth, the tempering and shaping of instruments, the drawing of wire and tubing for cases in orthodontia, and the cutting of bolts and nuts. 6. There must be prosthetic laboratories sufficiently equipped for teaching all kinds of prosthetic work, and the construction of all the approved prosthetic appliances. 7. There must be a sufficiently equipped laboratory for instruction in making crowns and bridges, and the construction of appliances used in orthodontia. 8. There must be a properly equipped infirmary or surgery for the reception of patients, upon whom each and every student shall be required individually to perform all and enough of the operations necessary in dental practice thoroughly to qualify him for the successful pursuance of his profession. 9. Complete records of the work done by each student, of his attainments at sufficient and full examination in each subject of the curriculum of study, of his attendance and deportment during the course, must be permanently kept. 10. No credit must be allowed for any work not done under the immediate supervision of instructors connected with or especially approved by the college, and who are in direct affiliation with the faculty.

The following is a list of the countries for which advisory boards have been designated, and the appointments and nominations so far as made:

COUNTRY.	NAME.	COLLEGE.	POST OFFICE ADDRESS.
Great Britain.	Wm. Mitchell, D.D.S.	Univ. of Michigan.	30 Upper Brook st., London, Eng.
" "	W. E. Royce, D.D.S.	Phil. Dental College.	2 Lonsdale Gardens, Tunbridge Wells, Eng.
" "	B. J. Bonnell.	.....	94 Cornwall Gardens, So. Kensington, London.
Holland and Belgium.	J. E. Grevers, D.D.S.	.....	18 Oude Turfmarkt, Amsterdam, Holland.
" "	Ed. Rosenthal, D.D.S.	Harvard Univ.	19 Boul. du Regent, Brussels, Belgium.
" "	C. VanderHoeven D.D.S.	.....	Der Haag.
Denmark, Swe & Nor'y	Elof Forberg, D.D.S.	Phil. Dental College.	Sturegatan 24, Stockholm, Sweden.
" "	S. S. Anderson, D.D.S.	Univ. Pennsylvania.	Christiania, Norway.
" "	L. P. Vorslund - Kjaer, D.D.S.	Phil. Dental College.	Copenhagen, Denmark.
Russia.	H. V. Wollison, D.D.S.	N. Y. Coll. Dent.	10 Quai de l'Amaranti, St. Petersburg, Russia.
"	Theo. Weber, D.D.S.	N. C. Coll. Dent.	Helsingfors, Finland.
"	Geo. Th. Berger, D.D.S.	Phil. Dental Col. '77.	St. Petersburg, Russia.
Germany.	W. D. Miller, D.D.S.	Unv. Pennsylvania.	Victoriastrasse 30, Berlin, Germany.
"	C. F. W. Bodecker, DDS	N. Y. Coll. Dent.	55 Unter den Linden, Berlin, Germany.
"	Friedrich Hesse, D.D.S.	N. Y. Coll. Dent.	Goethe Str. 6, Leipsig, Germany.
Austria and Hungary.	Dr. Szigmondi.	.....	.....
" "	Dr. Waeisser.	.....	.....
" "	Dr. Arkovy.	.....	.....
Italy and Greece.	Albert T. Webb, D.D.S.	Univ. Pennsylvania.	87 Via Nazionale, Rome, Italy.
" "	Tullio Anzani.	.....	.....
" "	A. V. Elliott, D.D.S.	Univ. of Mich. '87.	10 Via Tornabuoni, Florence, Italy.
France.	J. H. Spaulding, D.D.S.	Univ. Minnesota.	39 Boulevard Malesherbes, Paris, France.

COUNTRY.	NAME.	COLLEGE.	POST OFFICE ADDRESS.
France.	I. B. Davenport, M. D.	Col. P. & S., New York.	30 Ave. de l'Opera, Paris, France.
"	G. A. Roussell, D.D.S.	N. Y. Coll. Dent.	74 B'd Haussmann, Paris, France.
Spain and Portugal.	R.H.Portuondo, D.D.S.	Univ. Pennsylvania.	Paseo de Recoletos 3, Madrid, Spain.
"	Florest. Aguilar, D.D.S.	Phil. Dental Coll.	Serrano 5, Madrid, Spain.
"	T. J. Thomas, D.D.S.	.....	Bilbao, Spain.
Switzerland & Turkey.	L. C. Bryan, D.D.S.	Boston Dental Coll.	1 Steinenberg, Basel, Switzerland.
"	Theo. Frick, D.D.S.	Univ. Pennsylvania.	14 Tonhallenstrasse, Zurich, Switzerland.
"	Paul J. Guye, D.D.S.	Penn. Dent. Coll.	12 Rue de Candolle, Geneva, Switzerland.
Japan, China & India.	Louis Ottogy, D.D.S.	Western Dent. Coll.	87 Main street, Yokohama, Japan.
"	J. Ward Hall, D.D.S.	.....	Shanghai, China.
Australia & N. Zealand	Alfred Burne, D.D.S.	Phil. Dent. Coll.	1 Lyons Terrace, Liverpool street, Sydney.
"	A. P. Merrill, D.D.S.	Phil. Dent. Coll.	52 Collins st., Melbourne.
"	Herbert Cox, D.D.S.	Univ. of Mich.	216 Queen st., Auckland, New Zealand.
Cuba & W. Ind. Islands	R. R. Buchanan, D.D.S.	.....	47 San Francisco st., San Juan, Porto Rico.
Peru, Bolivia & Chili.	S. R. Salazar, D.D.S.	Chicago. Col. D. Surg.	Lima, Peru.

W. C. BARRETT, Chairman, Buffalo.

S. H. GUILFORD, Philadelphia.

J. D. PATTERSON, Kansas City.

T. W. BROPHY, Chicago.

H. W. MORGAN, Nashville.

} Foreign Relations Committee.

[Printed by courtesy of *Dental Cosmos*.]

News Summary.

B. B. DAVIS, a prominent dentist of Athens, Ga., died July 20, 1900.

JAS. FERGUSON, 61 years of age, a dentist at Erie, Pa., died Aug. 1, 1900.

IRA E. PIKE, a dentist at Isle La Motte, Vt., 50 years old, died July 28, 1900.

H. F. BENNETT, a dentist at Louisville, Ky., 50 years of age, died July 31, 1900.

DAVID RICHEY, a former dentist of Milwaukee, died Aug. 3, 1900, at the age of 62 years.

A. P. WILLIAMS, 76 years old, and for many years a dentist at Boulder, Col., died Aug. 15, 1900.

B. J. PERRY, 48 years of age, and for twenty years a dentist in New York city, died July 29, 1900.

L. M. FINIGAN, a dentist 53 years of age, died of Bright's disease at San Jose, Cal., July 25, 1900.

S. P. WAUGAMAN, 45 years old, a dentist at McKeesport, Pa., died July 20, 1900, from cancer of the stomach.

C. L. TUCKER, a dentist at Sweetwater, Tenn., killed a man recently, but it is believed that his action was justifiable.

J. N. JONES, a dentist at Sanford, Fla., 48 years of age, formerly of Jacksonville, died Aug. 18, 1900. He was a native of Georgia.

WOMAN DENTIST IN MANILA.—Dr. Annie M. Sawyer of New York has hung out her shingle in Manila, and is finding plenty to do.

HIGH GRADE DENTISTRY.—According to the Philadelphia *Ledger*, a dentist of Elizabethtown, Pa., stands seven feet three inches in his stocking feet.

\$20,000 ASKED FOR A BROKEN JAW.—A woman in Fresno, Cal., has sued a dentist for \$20,000, claiming that he broke her jaw while extracting a tooth.

HARRY E. RAE, a dentist at Hammond, Ind., tried to commit suicide in the Chicago police station, Aug. 20, 1900, but it is believed that he will recover.

T. C. GLEDHILL, who was born in England, but who lived the greater part of his life in Philadelphia and practiced at Kensington for twelve years, died July 28, 1900.

D. E. PETERSON, who has for some time been practicing dentistry at Tien Tsin, China, has been heard from, and his relatives in New York State feel much relieved.

COCAIN PROVED FATAL.—A woman at Warren, Ind., is reported to be dying of blood-poisoning resulting from the administration of cocaine by a dentist to allay pain.

LOUISIANA DENTAL EXAMINERS.—The following were appointed on the state board Aug. 13: J. E. Woodward, R. L. Zelenka, J. S. Coreret, C. B. Johnson, G. A. Colomb.

SAMUEL H. GISH, 81 years of age, and the oldest practicing dentist in Janesville, Wis., died Aug. 2, 1900. He was a direct descendant of the old Guise family of Europe.

H. J. MAXWELL, a young dentist of Napoleon, Ohio, mysteriously disappeared June 11, and has not as yet been heard from. It is thought that he became demented and wandered away.

SEATTLE DENTAL CLUB was organized recently at Seattle, Wash., and the following officers were elected: Pres., C. A. Holmes; V. P., E. D. Andruss; Sec., A. D. Andrews; Treas., E. B. Palmer.

TO UTILIZE WAVE ENERGY.—Dr. J. K. Bryson, a dentist of Pittsburg, has invented a machine by which he hopes to utilize the wave power of the ocean. Successful trials have already been made.

E. E. PAXSON, a dentist at South Bend, Ind., was beaten and robbed by a man who was repairing his dental chair recently, and it is thought his assailant was a professional hold-up man who adopted chair repairing to gain opportunities for robbery.

TO COOL WATER when ice cannot be obtained, wrap the pitcher in cheese cloth previously impregnated with ammonium nitrate and dried. Moisten slightly at time of use, dry, and use again.—*Med. Rec.*

"MIZPAH" is the name of an amalgam put out in Europe. The quality of most alloys is such that a dentist might well say to his patient, "God be with you till we meet again," after inserting an amalgam filling.

PUBLIC TOOTH-PULLING EXPENSIVE.—A peddler who was pulling teeth in the streets of Norwich, Conn., as an advertisement for goods which he was selling, was fined \$60 dollars for illegal practice of dentistry on Aug. 15, 1900.

F. C. ROOD, a dentist of Kalamazoo, Mich., was sunstruck July 31, 1900. It evidently affected his mind, as without warning he took a train for Omaha, Neb. His strange actions induced his relatives there to send him back home, but as yet he has not been heard from.

"CADAVER TRUST" UNDER SUSPICION.—This organization, which has been in the habit of securing bodies from the insane asylum and poorhouse at Dunning for the Chicago dental and medical colleges, is now suspected of irregular methods, and the authorities are about to investigate it.

BOTTLE TALES.—She: In this story it refers to empty bottles as "dead men." That's absurd.

He: What's the absurdity?

She: Well, dead men tell no tales; empty bottles do.—*Moonshine.*

C. C. CORBETT of Edwardsville, Ill., received his commission as a member of the Illinois State Board of Dental Examiners on Aug. 4, 1900, to succeed A. C. Barr. Dr. Corbett is a capable and conscientious man for the place, and we congratulate the practitioners of this state upon his appointment.

STOLE HIS FALSE TEETH.—A woman in Massachusetts ran away from her husband and took with her his false teeth. Perhaps she was actuated by revenge, or possibly she still loved him and wished to keep an intimate souvenir, or it may be that she did not wish him to chew the matter over.

ARABIAN PROVERB.—He that knows not, and knows not that he knows not, is a fool—shun him. He that knows not, and knows that he knows not, is simple—teach him. He that knows, and knows not that he knows, is asleep—wake him. He that knows, and knows that he knows, is wise—follow him.

JULES J. SARRAZIN, dean of the New Orleans College of Dentistry, was shot and probably fatally wounded by Armand Mary, a prominent dentist of New Orleans, on Aug. 25, 1900. The men were leaders of opposing factions during the pendency of the last dental bill and became enemies. They afterwards fought a duel with the above result.

TOOTH DESTROYS LUNG.—A woman in Ohio has sued her dentist for \$10,000. She claims that when he was extracting some teeth one of them went down her throat and into the right lung where it remained for five months. It was expelled during a coughing fit, but in the meantime the plaintiff claims that abscesses formed and almost destroyed the lung.

TURKEYS' AGE.—"How do you tell the age of a turkey?"

"By the teeth."

"A turkey hasn't teeth."

"No; but I have."

MORE DENTAL DEADBEATS.—In our June issue we stated that farmers in Iowa and Nebraska had been victimized by traveling dentists. The same thing has now been practiced throughout Indiana, and the same method has been adopted. The swindlers extracted the teeth and pulled the legs of their victims. They collected half the price of a new set, but as yet the sets have not been delivered and are not likely to be.

REWARD OF THE PHILANTHROPIC PHYSICIAN.—(*Boston Med. and Surg. Jour.*) A physician in this vicinity was recently called to a family which he found in such destitute circumstances that he gave in addition to his prescription, a five-dollar bill. Happening in the next day, he discovered that his gift had been thus spent: Three dollars to the priest, and two dollars to get another doctor.

ACUTE TRIFACIAL NEURALGIA.—In it almost all antineuralgic drugs may succeed, though the quickest results are obtained with repeated 15 grain doses of sodium salicylate, or $7\frac{1}{2}$ grain doses of quinin. In chronic trifacial neuralgia better results are obtained by certain combinations of drugs, such as phenacetin with quinin, cannabis indica with salicylic acid, chloral hydrate with morphin, and the bromids with morphin or belladonna.—*Therap. Gazette.*

RELIEF OF THIRST.—Dr. A. Philip writes to the *Lancet* referring to a mode of quenching thirst by keeping a small round pebble in the mouth. Thirst disappears and perspiration is diminished. Dr. Philip states that he has gone as long as eight hours and a half in a broiling sun with nothing but dry biscuits and cheese for a lunch and at the end of that time was not particularly thirsty. This plan is by no means new, though it is probably not so widely known as it deserves to be.

HABIT.—Somebody has been trying his hand on the word "habit," and he works it out thus: "Habit" is hard to overcome. If you take off the first letter it does not change "a bit." If you take off another you still have a "bit" left. If you take off still another the whole of "it" remains. You take off still another and it is—no "it" is totally used up. All of which goes to show that if you wish to get rid of habit, you must throw it off altogether and at once; it cannot be done a part at a time.—*Stylus.*

REFLEX AMAUROSIS.—The condition reported by Sloggett, which is unique in his experience and which he finds mentioned only by Swanzy, and by him discredited, is one of amaurosis due to reflex from the teeth. His patient had had no toothache or pain in the teeth themselves during the manifestation of eye symptoms which were completely relieved by the extraction of the decayed roots. The ophthalmoscopic examination throughout had been negative as regards any pathologic conditions, while the light perception was entirely lost during the attack.—*Jour. A M. A.*

RETORT COURTEOUS.—“Doctor,” said the inquisitive lawyer, “why did you call in another physician when you had influenza? Didn’t you have faith in your own medicine?”

“Why,” the doctor asked, “did you get another lawyer to defend you when your wife sued for divorce? Didn’t you have faith in your own ability to insult witnesses?”—*Washington Star*.

STYPTIC FOR BLEEDING GUMS.—

R	Tr. krameris	.....	3 i.
	Chloroformi	.....	m viij.
	Ac. tannic.	.....
	Menthol	.....	aa gr. iv.
	Aq. destill.	.....	℥ ij.

—[VIAU, *Med. Rec.*

SWEATING HANDS.—The *Jour. de Med. de Paris* gives the following formula:

R	Borax	} of each.....	4 drams;
	Salicylic acid		
	Boric acid	.....	1 dram;
	Glycerin	} of each.....	2 ounces.
	Dilute alcohol		

Apply with friction three or four times a day.

TENDERNESS AND PHILOSOPHY.—A typographical tourist sends us the following, which he discovered somewhere near Omaha, as an example of the harmonious blending of pathetic tenderness and comforting philosophy:

“We mourn the loss of our Jamie dear,
Who went to heaven with diarrhea.”

Under which some sacrilegious tramp had inscribed:

“’Twere better thus for his salvation,
Than to have gone with constipation,

—*Inland Printer*.

INGROWING NAILS.—I wish to call attention to a method of treatment for this painful affection which I have used for many years, and I do not remember a failure to promptly effect a cure: 1. Remove all pressure from the nail by cutting away piece of the shoe. 2. Disinfect with hydrogen dioxide until no more “foam” appears. 3. Apply a drop of strong solution of cocain in the base of the ulcer. 4. Apply a drop of Monsell’s solution to the ulcer, then cover loosely with gauze. Repeat this process every second day until the edge of the nail is released by the retraction of the hypertrophied tissue. The patient suffers no pain from the application and all pain disappears the second day. The cure is effected in a week or two, without inconvenience or interference with business.—*Dr. Kinsman, Columbus Med. Jour.*

GEOPHAGY.—The habit of eating earth, or geophagy, is more widespread than is generally supposed. In some parts of Germany a fine clay is spread upon bread, under the name of stone-butter. In Upper Italy and in Sardinia earth is sold in the market. In the extreme northern part of Sweden and in

the peninsula Kola an earth composed of infusoria and called mountain flour is baked in bread. In Persia earth is used in the manufacture of certain sweetmeats. In tropical regions the use of earth as an article of food is well known; but it is also employed as a medicine in Nubia, and among different tribes its use has a religious meaning as well. Many explanations are offered for such a widespread custom. It is not impossible that these various earths have more or less flavor, and that they supplant to a certain degree the use of salt.—*Med. News.*

FORMALIN FOR WARTS.—M. F. Engman (*Medical Review*, May) says that it is first necessary to remove the thickened horny layer with a salicylic acid plaster, twenty per cent, or salicylic acid in flexible collodion, one dram to the ounce, applied for several days, when the patient returns. The part is bathed in very hot water, which macerates and removes the homogenized horny layer. It is then dried, wiped with benzine to remove any fat or plaster, and painted with pure formalin. The painting should be done thoroughly and the swab allowed to remain on the place for a few moments, which increases the penetration of the gas in solution. This agent is deeply penetrating and seems to seek out and destroy the offending factor. Very slight burning is experienced, but is much less painful than the usual methods. One or two paintings are sufficient to effect a cure; the wart whitens and drops off in a few days, but the horny layer must first be well softened and removed by the salicylic acid.

FACIAL EXPRESSION OF FATIGUE AND VIOLENT EFFORT.—Dr. R. Tait McKenzie (*Science*, March 16,) says that in fatigue, as observed in a foot race of a mile, we saw the following changes: The lips were slightly parted, the teeth open, eyes semiclosed, brows contracted, as in mental concentration, the upper half of the orbicularis acting with the corrugator supercilii. As the race proceeded, the lips were drawn down by the depressors and up by the levator proprius and zygomaticus minor. The corrugator acted strongly. As the respiratory need increased the nostrils were dilated by the levator labii superioris aequae nasi, accentuating the expression of grief. This expression then passed away and the face became apathetic, the mouth gaped and the jaw dropped, the upper eyelid tended to droop. The lowering of the upper lid was counteracted either by throwing the head back or by bringing into action the occipito-frontalis. This gave rise to an expression of astonishment in the upper part of the face. In extreme exhaustion or collapse the jaw dropped, the upper lid came down and the face became expressionless. When a violent effort was made the expression came more nearly to correspond to that of rage.

HE GOT THE PLACE.—Dr. McTavish of Edinburgh was something of a ventriloquist, and it befell that he wanted a lad to assist in surgery who must necessarily be of strong nerves. He received several applications, and when telling a lad what the duties were, in order to test his nerves, he would say, while pointing to a grinning skeleton standing upright in a corner: "Part of your work will be to feed the skeleton there, and while you are here you may as well have a try to do so." A few lads would consent to a trial, and received

a basin of hot gruel and a spoon. While they were pouring the hot mass into the skull the doctor would throw his voice so as to make it appear to proceed from the jaws of the bony customer and gurgle out: "Gr-r-r-h-gh! That's hot." This was too much, and without exception the lads dropped the basin and bolted. The doctor began to despair of ever getting a suitable helpmate, but a small boy came and was given a basin and spoon. After the first spoonful the skeleton appeared to say: "Gr-r-r-uh-r-hr! That's hot." Shoveling in the scalding gruel as fast as ever, the boy rapped the skull and impatiently retorted: "Well, jist blow on't, ye auld bony!" The doctor sat down on his chair and fairly roared, but when the laugh was over he engaged the lad on the spot.—*Current Literature*.

ETHYLIC BROMID.—Sondern recommends this agent as one of the safest and best for short operations. It must be very volatile, when poured on the hand must evaporate rapidly, must be entirely colorless and have a sweet odor. The entire quantity for a child is 5 to 10, and for an adult 10 to 20 grams. This is poured on an anesthesia mask, allowing only a small quantity of air. Anesthesia is obtained in from twenty to forty seconds, when the mask is removed and not reapplied. The administration must be arrested at the proper time, which is shown by the relaxation of the muscles of the neck and arms. If this is unobserved and the anesthesia is continued the muscles contract and there is danger of asphyxia, especially when operating on the larynx. If this moment has been allowed to pass it is better to let the patient come out, and reanesthetize, preferably at another time. The anesthesia lasts about two minutes. For a person from 3 to 16 years of age ethylic bromid has no equal, as the patient, though not completely unconscious, feels no pain. The fatal cases recorded may be attributed to either the use of ethylen instead of ethlic bromid, the use of an old solution, the use of the drug in repeated small quantities, the continuance of administration for longer than one minute, or repeated administration. The mask should never be applied more than twice at one sitting, as a case has been recorded where death occurred at a third application.—*Jour. A. M. A.*

MEDICAL EXPERTS IN CASE AGAINST DENTIST.—A dentist having been sued for damages for alleged malpractice in using unclean instruments, the Supreme Court of Kansas sees no error in questions intended to secure the judgment of persons skilled in medicine and its effects as to the likelihood of the plaintiff's affliction having been caused by the defendant's failure to sterilize his dental instruments, although from the hypothetical questions propounded to them they could merely give their best judgment as to the cause of the plaintiff's disability. The contention of counsel for the defendant that the physicians should have been required to state with certainty the cause of the plaintiff's condition after a hypothetical case had been submitted to them, it holds, would be supposing an exactness in medical science to which its most learned followers have not yet attained. In other words, it holds that medical experts, in response to hypothetical questions, are not required to answer with certainty, but may give their opinions as to the probable result of a given treatment or operation. In propounding such ques-

tions it further says counsel may base the same on testimony which is weak and inconclusive, and on testimony of one or more witnesses, or on inferences properly deducible therefrom. It is not necessary that the exact words of witnesses be used in propounding the questions. But an objection that a hypothetical assumes facts not proved, ought to point out with particularity the facts which are claimed to be untruly stated. Judgment for \$2,000 for the plaintiff, Roark vs. Greeno, was affirmed.—*Jour. A. M. A.*

THE DENTIST.

(Written by a little girl patient, from her standpoint.)

Lurks the Dentist in his lair,
With a wild and woolly glare;
Comes along a little maid,
Timid, shrinking, sore afraid.

Climbs into the fearful chair
(Doctor has her helpless there),
Peers he down her little throat;
Chuckles somewhere 'neath his coat.

Fits her with a rubber mask,
Smiling, smirking o'er his task;
Drills and bores with mighty vim,
Chuckling all the while within.

Pounds and thumps for three long hours,
Maiden weeps a few small showers;
At last she sheds the hateful mask,
Faintly creeps from 'neath his grasp.

Limply, whitely crawls away;
Pa a handsome bill must pay.
Lurks the Dentist in his den,
For his suffering fellowmen.—*Items.*

POISONING BY POTATOES.—Pfuhl (*Deut. med. Woch.*, Nov. 16, 1899) report the case of fifty-six German soldiers who were stricken together with symptoms of acute gastro enteritis. The sickness began with chills, followed by fever, headache, colic, vomiting and diarrhea. A number of the men collapsed, and all were much prostrated. More or less jaundice developed. None of the cases ended fatally, nor were there any relapses or sequelæ. Investigation showed that the soldiers had all eaten of sprouting potatoes, and it was supposed that they had been poisoned with the alkaloid solanin, although the troops had eaten sprouting potatoes before but without bad results. The potatoes were always carefully peeled and the sprouts largely cut out. They were then cut up and allowed to stand all night in water. In the morning they were rinsed off in running water and cooked for twenty-five minutes. Several similar instances of potato (or solanin) poisoning have been known in Germany, and it has long been asserted that potato eyes or sprouts contain solanin, an irritant and narcotic poison. The cases reported

on the continent show that solanin is present in the potato to a slight but varying extent, and that in all probability its formation is dependent in some way upon the process of germination. While ordinarily the amount is too small to be poisonous, it may under unknown conditions be markedly increased. Pfuhl thinks mild cases of indigestion, diarrhea, etc., might in some cases be accounted for by the previous ingestion of potatoes having an increased proportion of solanin.—*N. Y. Med. Jour.*

FACIAL NEURALGIA.—W. C. Belt, in the *Medical Sentinel*, gives a new and simple method for the relief of this painful condition. He says that the two nerves endowed with the greatest number of tactile nerve-endings are the fifth, supplying sensation to the antero-lateral part of the head and face, and the median, supplying the fingers. The motor areas of these nerves in the cortex are not only adjacent to each other, but actually overlap. Acting in accordance with this idea, and with the fact that the fibers of the median cross in the cord, he has succeeded in relieving a number of cases of facial neuralgia. He directs the patient to place the hand, opposite to the side on which the neuralgia exists, in a basin of water as hot as can be borne. Relief has invariably been given in less than five minutes. The history of several cases is appended. He uses hot water, as it is the simplest method of imparting a uniform kind of motion (heat) to the greatest number of tactile nerve-endings. He thinks that the cerebral cortex receives an impression which will dominate the impression produced by the pain.

CANNOT TESTIFY TO OWN CLAIM FOR SERVICES.—The constitution of the State of Arkansas provides that "in actions by or against executors, administrators or guardians, in which judgment may be rendered for or against them, neither party shall be allowed to testify against the other as to any transactions with or statements of the testator, intestate or ward, unless called to testify thereto by the opposite party." This was invoked in the case of *Cash vs. Kirkham*. Here a physician had presented two accounts against the estate of a deceased person. They were principally for services rendered the deceased and his family. The administrator disallowed them. Then there was a suit over them. In that the plaintiff was allowed to testify, over the defendant administrator's objection, that he was the attending physician during the last illness of the deceased; that he made forty visits, at \$2 a visit; that the cost of an operation on the wife of the deceased was \$25; and that the total amount due on this account was \$120. The defendant objected to this testimony of the plaintiff, for incompetency—the same being as to transactions with the defendant's intestate. The overruling of this objection and allowing the evidence to go in, the Supreme Court of Arkansas now holds was reversible error. It says that the testimony of the plaintiff tended to prove an implied contract with the deceased, the legal effect of which, as a whole, if true, was an implied promise of the deceased to pay the plaintiff the sum of \$105 for services rendered. This was a transaction with the deceased—as much as it would have been had the deceased expressly promised to pay \$105. The only difference between the two transactions was that in one case the promise was implied, and in the other expressed. Hence, the court holds, the testimony should have been excluded on the ground that the plaintiff was incompetent to testify as to such transaction.—*Jour. A. M. A.*

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